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INSIDE DOPE

by GEORGE F. TAUBENECK

Essay on Bureaucracy
Here We Go Again
Bureaucrats Aren't to Blame: It's Bureaucracy Which Frustrates
The Seven Sacred Signatures
The Privileges of Rank

Essay on Bureaucracy

Wartime dollar-a-year-men (so-called "experts" who are paid one dollar per annum, minus deductions, for their services to the U. S. Government) are classified among the lower forms of animal life by many people.

Bureaucrats, rear admirals, and lieutenant colonels hate them because they are relatively independent. Inasmuch as the government doesn't pay their salaries, they aren't beholden to the Civil Service or to military brass hats. If they are fired from their influential positions, they're glad of it. Then they can go back to their *real* work.

Their independent attitude leads them to cut through red tape and chain-of-command procedure. Because their jobs aren't at stake, they can ignore rules and regulations and protocol. That miffs the bureaucrats no end, because it shows them up and spoils their game. And, of course, the very presence of these dollar-a-year men means that a government or military career man has been displaced or supplanted.

The "man in the street" suspects them because he presumes that, since they are still on the payroll of a corporation, they may harbor ulterior motives when they go to work in a government department. And the Communists in these government bureaus fear and despise them because dollar-a-year men often uncover nefarious activities of the Fifth Column.

Even the Washington press corps, which should know better, looks askance at dollar-a-year men. In short, nobody seems to love them.

Perhaps that's why the writer has never admitted publicly, until now, that he was paid $1 per year (minus deductions—our last check was for eight cents) by the War Production Board for 37 months during World War II.

Even now we reveal this connection only because we hope it will authenticate the ensuing observations about bureaucracy *per se*.

Here We Go Again

Because the whole war-inflated bureaucratic she-bang is starting all over again, we hope these observations will be pertinent and useful to citizens who should be critical of government preparations for World War III.

For the purposes of this essay, the important thing about our World War II dollar-a-year job was the fact that it afforded active and intimate contact with bureaucracy while preserving the vantage point of objective aloofness. We were in it but not of it.

As a dollar-a-year Consultant to the War Production Board we made surveys and wrote reports for the attention of "top policy level" administrators.

It was our privilege to contact and seek cooperation from many types and varieties of government bureaus and Army-Navy higher echelons. We were supposed to cut through lines of authority, rattle the chains of command, and upset dignified procedure anywhere, any time, in getting the information our assignment required—as were all dollar-a-year men.

It's no wonder that so many Lieut. Commanders, Ordnance Colonels, and

(Concluded on Page 8, Column 1)

$1-an-Hour Wage, 35-Hour Week Law Suggested by UEW

WASHINGTON, D. C.—A standard work week of 35 hours and the immediate establishment of a minimum wage of $1 an hour to be raised as rapidly as possible to $1.50 per hour are the working conditions that Russ Nixon, Washington representative of the United Electrical, Radio, and Machine Workers Union, CIO, would like to see included in a new Federal wage-hour law.

Nixon brought forward these proposals in his testimony last week before the House Labor Committee, which is considering a new wage-hour bill.

He asserted that the 35-hour week would be a step toward the long-run objective of American labor to achieve a 30-hour work week with no reduction in take-home pay. The objective should be reached as fast as technological advances permit, he indicated.

To justify the shorter work week, he pointed out that it would be feasible if production had risen only 14% above that of 1938. Actually, he declared, production had gone up

(Concluded on Page 4, Column 4)

Westinghouse Plant Put on 6-Day Week

MANSFIELD, Ohio—Refrigerator production workers of the Westinghouse Electric Appliance Div. plant here have begun a six-day work week to step up manufacturing of the company's line, according to J. H. Ashbaugh, vice president.

Approximately 1,600 workers will benefit from the extra day of work at time and a half overtime pay. The company also added 100 new employes to the payroll to help meet the increased production schedule. Employment at the 42-acre appliance producing plant is now more than 8,100, highest in its 31-year history.

"Our ability to secure larger amounts of materials for refrigerator production, including steel and hardware items, has made it possible to step up manufacturing of our new, 1949 line of refrigerators," Ashbaugh said.

"We are confident that there is a demand for this increased volume and our confidence is based on our sincere belief that 1949 will be another good year for general business in the United States."

Some Appliance Sales Up, Others Down In West Penn Dec. Count

PITTSBURGH — The year 1948 produced new high sales totals for dishwashers, disposers, ranges, clothes driers, and water heaters among dealers in the southwestern portion of Pennsylvania south of here, the West Penn Power Co. reported recently.

At the same time, the utility announced that dealer sales of dishwashers, disposers, freezers, clothes driers, and conventional clothes washers, during December were higher than those of any previous month on record.

Beyond these, however, the picture for both the year and for December was spotty.

For the year, refrigerators and conventional washers showed sales gains. Freezers, room coolers, ironers, automatic washers, and vacuum cleaners fell below 1947.

For December, as compared with the previous December, sales of ranges, refrigerators, room coolers, ironers, automatic washers, vacuum

(Concluded on Page 4, Column 4)

Big Birmingham Turnout Closes Service Series

By C. Dale Mericle

BIRMINGHAM, Ala.—With a total attendance of approximately 1,300, which greatly exceeded expectations, the First Southern Refrigeration and Air Conditioning Conference and Exhibit brought to a successful conclusion the series of four such regional meetings held over the past 10 months.

Sponsored jointly by the Refrigeration Equipment Manufacturers Association and the Refrigeration Service Engineers Society as an interim educational measure between the All-Industry Shows, these meetings have attracted thousands of servicemen in various parts of the country to the educational discussions and exhibits of manufacturers.

This news story and Associate Editor Dale Mericle's "On-the-Spot" column published elsewhere in this issue present some first impressions and information on the First Southern Refrigeration and Air Conditioning Educational Conference and Exhibit.

In a following issue, the News will present some of the typical questions and problems brought up by those attending the conference, and the answers supplied by representatives of manufacturers who were present.

At the conference in Birmingham, for example, there were 67 exhibits by manufacturers giving educational details of their products and applications, in addition to five discussions presented at the regular RSES ses-

(Concluded on Page 4, Column 5)

No Painting, Repairing In 49 Years; Credit It To Air Conditioning

NEW YORK CITY—Air conditioning is given credit for the fact that none of the 49-year-old ceilings in the Andrew Carnegie mansion here ever had to be painted or repaired.

This fact came to light recently when the mansion was turned over to the New York School of Social Work of Columbia university. A story in the *New York Times* about the mansion, quoting a caretaker who had been on the job 44 years, states:

"A great help has been the air conditioning system, believed to be the first ever installed in a private home . . . it reduced dust and grime to such an extent that none of the 49-year-old ceilings have ever needed painting or repairing."

Report Some Stores Planning Cut on Number of Lines

NEW YORK CITY—Because of the continuing slump and failure of manufacturers to increase "inadequate" discounts, some dealers intend to drop one or more competing top brand major appliance lines, the *New York Times* reported recently.

"At least one retail organization which is a substantial factor in the local appliance picture is on the verge of dropping one of four top brand refrigerator lines which it now carries, according to one of its executives," the *Times* stated. "He said that more lines may be dropped if sales do not improve.

"Profit margins on refrigerators do not justify current high advertising and sales promotion costs necessary to sell several competing models, the store spokesman pointed out. He said that these costs were

(Concluded on Back Page, Column 2)

Contractors Push for Code in Wisconsin

MILWAUKEE—A statewide safety code provision to protect the public from improper installation of refrigeration equipment was advocated by the Refrigeration Contractors' Association of Wisconsin at its convention here Jan. 30.

The group went on record as favoring a provision suggested by Milwaukee Fire Chief, Edward C. Wischer, who said that all fire chiefs in the state favor such action and would aid in obtaining the enactment of proper legislation. The suggested provision also would have to be approved by the State Industrial Commission.

Pointing out that faulty refrigeration equipment installations have caused explosions and injuries through liberation of explosive gases, Wischer said firemen have

(Concluded on Page 4, Column 4)

Aulsebrook, Bostwick Move Up at Servel

EVANSVILLE, Ind. — O. J. Dail, general manager of the electric refrigeration division of Servel, Inc., has announced the appointment of W. J. Aulsebrook as assistant to the general manager. Aulsebrook will be succeeded as sales manager of this division by J. W. Bostwick.

Bostwick was with the U. S. Gypsum Co. from 1943 to 1948, at which time he resigned to accept his pres-

(Concluded on Page 4, Column 4)

Sale of Space at 1949 All-Industry Show To Non-REMA Members To Open In March

WASHINGTON, D. C. — Nearly 50% of the available space at the 6th All-Industry Air Conditioning and Refrigeration Exposition to be held at Atlantic City, N. J., Nov. 14 to 18, 1949 has already been sold to members of the Refrigeration Equipment Manufacturers Association, sponsor of the show, it was announced recently by the Show committee.

Over 75,000 sq. ft. of exhibit space will be used. Ninety-two firms have already made reservations.

In March, sale of space will be open to all manufacturers of equipment in the air conditioning and refrigeration industry, it was announced by H. F. Spoehrer of the Sporlan Valve Co., chairman of REMA's All-Industry Exposition committee.

Other members of this committee are K. B. Thorndike, Detroit Lubricator Co.; J. K. Noel, Jr., Victor Products Co.; and J. F. Dailey, Typhoon Air Conditioning Co., Inc.

One of the innovations at this year's 6th All-Industry Exposition is conveniently located "conference booths." These are furnished booths provided by the show management for the convenience of exhibitors and visitors to the show where they may rest in comfort while discussing business matters.

Sale of space for the 6th All-Industry Air Conditioning and Refrigeration Exposition is under direction of R. K. Hanson, show director, 1107 Clark building, Pittsburgh.

Following is a list of the 92 com-

(Concluded on Back Page, Column 4)

Utilities Back of 1949 Kitchen Promotion Plans

First Postwar Sales Push Features Color Movie, Many New Sales Aids

NEW YORK CITY—Completion of a new advertising and promotional program on all-electric kitchens, to be sponsored by the electric utility industry, was announced last week by Edison Electric Institute here.

Ernest R. Acker, president of EEI, described the program as "the initial step in a coordinated national drive to sell America the advantages of electrical living, rather than individual appliances."

He said the program, "the industry's first national sales effort in the major residential kitchen market since prewar years," will be carried on by the electric light and power companies in their respective areas, using materials prepared by the institute.

The program was prepared by the Electric Kitchen and Laundry Committee of EEI's Commercial Division. Harry Restofski, general sales manager, West Penn Power Co., Pittsburgh, is chairman of the commercial division general committee and T. O. McQuiston, director, residential sales promotion, Duquesne Light Co., Pittsburgh, is chairman of the Electric Kitchen and Laundry Committee.

A market of $35 billion in retail sales of major electrical appliances with an annual consumption of 161 billion kilowatt-hours of electricity, and electric service revenues amounting to over $2⅓ billion per year, is the industry's long-range goal in this program, according to Restofski.

Emphasizing the importance of this market, Restofski said that "165 billion kwh. per year is more than three times the industry's total sales to homes in 1948, the $2⅓ billion in annual revenue is greater than the industry's total revenues in any year prior to World War II, and is 1.7 times larger than present annual revenues from residential sales.

"The magnitude of this unsold market and the many desirable fea-

(Concluded on Page 29, Column 1)

Proctor Plans Program Of Home Demonstrations

PHILADELPHIA—An experimental merchandising campaign designed to determine what can be accomplished when its products are brought to consumers with a direct visual presentation will be launched in the spring by Proctor Electric Co., Walter M. Schwartz, Jr., president, announced recently.

The campaign will promote Proctor's "sit-down" ironing program. Products involved in this program include the company's new steam or dry iron and ironing board, first shown to the trade during the recent Housewares Show in Chicago. Neither product is yet in production.

Factory-trained crews will carry the new products directly into the home where they will use them to put on a "sit-down" ironing demonstration, Schwartz explained in a letter to distributors.

"In order to cover the expense of such demonstrations, these crews will make sales wherever possible," he said. "All sales will be billed through leading retail stores.

"While deliveries on such sales will be furnished from factory stocks, cooperating retailers will purchase these same products from distributors for sale in their stores where promotional effort will be increased through demonstration and tie-in advertising."

Now you can sell the new Revco 12.3 cu. ft. CHILL CHEST heavy duty freezers — to customers who want to buy at the most advantageous prices. The refrigeration unit is a ¼ HP, fan-cooled, internally mounted Tecumseh unit, which will give years of trouble-free service and most economical performance.

THESE FEATURES WILL HELP YOU SELL THE NEW REVCO 12 CU. FT. HEAVY DUTY FREEZERS:

1. Compact size — large capacity.
2. Aluminum food liner — chip proof, easy to clean.
3. Modern design — all welded steel construction — all seams vapor sealed.
4. Heavily insulated with 4½" fiberglass.
5. Efficient, economical — dependable operation.
6. Exclusive red flashing safety light, protects against temperature rises.
7. Counterbalanced "floating action" lid, with interior light.

Write us for complete specifications and folders

NATIONAL DISPLAY SPACE — 1454 MERCHANDISE MART, CHICAGO, ILLINOIS

REVCO, INC. • DEERFIELD, MICHIGAN

New Carrier Movie Tells Air Conditioning Story

SYRACUSE, N. Y.—Carrier Corp. is releasing a new 16 mm. sound motion picture in color dramatizing the functions and benefits of air conditioning in the home, in commerce, and in industry.

Entitled "Service Unseen," the 22-minute film covers the history of "man-made weather" from the development of the principles of air conditioning to its present state of widespread usefulness.

Through the use of animation the film demonstrates the four functions of air conditioning—cleaning of the air, control of temperature and humidity, and circulation of the air—and then shows how different types of manufacturing employ one or more of these elements to make goods better and at less cost than ever before.

The processing of cotton and nylon is shown under both controlled and uncontrolled "weather" conditions. The blast furnaces of a steel mill, candymaking, meat processing, the production of medicines, serums, and drugs, and of precision equipment are covered in this industrial round-up.

The film also demonstrates the application of comfort air conditioning in hotels, restaurants, retail stores of all types, trains, ships and buses, and through room air conditioners in homes and offices.

"Service Unseen" is being distributed nationally by Castle Films, 445 Park Ave., New York City, and prints are available without charge for showings by organized groups.

Denver Dealer Employs Prospect Listing To Dispose of Trade-Ins

DENVER — Maintaining a handy prospect file of people who want low-priced, used refrigerators has solved the trade-in problem for Joe Onofrio, head of the 17-year-old company of the same name.

"We have considered setting up a reconditioning shop, but after surveying the turnover of trade-in boxes, we have found that we actually do not hold on to a trade-in long enough to recondition it," Onofrio said. "By that I mean our list of used-box prospects is so large that we can always dispose of the box with one or two telephone calls."

Since the end of the war, Onofrio has been running display advertisements which include a box section reading: "See Joe Onofrio for the best trade-in allowance in town!" Outside salesmen make their own deals, giving allowances which permit a fair profit on the sale of the new refrigerator.

The installation department hauls the used box to a large showroom at the rear of the store. As soon as the refrigerator is received, Onofrio goes through a list which often runs to 500 names—all lower-income people who have made a point of asking the store for trade-ins below a price of $100.

The card file, wherein each prospect is classified according to the type of box he wants, will invariably reveal the names of several prospects for the specific refrigerator. A few telephone calls usually produce the sale, and it is seldom that a used refrigerator in good condition remains in the building for more than a day.

Onofrio keeps the list active by occasionally running a classified advertisement, offering a trade-in of good make at a low price. Names of all who respond are entered in the card file.

Boxes not worthy of re-sale without expensive reconditioning are "junked" or sold to shop-owning dealers who can use the parts in repairing other refrigerators.

The dealership is taking in as many as 25 or 30 used refrigerators a month and has been able to sell all it can get.

Westinghouse U-4 Model Fits Under Sink, Counter

SPRINGFIELD, Mass. — The Springfield plant of the Westinghouse Electric Appliance Division recently completed the first model of its U-4 refrigerator.

Designed to answer the needs of apartments where space is at a premium, the U-4 fits compactly under the sink drain board or working counter.

Except for size, the U-4 is a duplicate of larger models. Its special features include a 15-lb. frozen food capacity and a reversible door which can be converted from right to left hand with the same handle and hinges.

The new model has a shelf area of eight sq. ft. and an over-all food capacity of 4 cu. ft.

Distribution will be confined to apartment and building trades until increased production has been achieved, probably late this year. The U-4 will then be offered to dealers for selling for use in doctors' and business offices and game rooms.

American Kitchens Book Covers Plans, Installing

CONNERSVILLE, Ind.—A dealer's manual on planning and installing a modern kitchen has been published by the American Kitchens Div., Avco Mfg. Corp. here.

The book, set up in looseleaf form, is divided into seven sections. The sections cover planning, measuring, the Plan-A-Kit, installation, installation tips, installing a ventilator, and installing a disposer. An index to all sections is appended at the rear.

The manual contains 112 pages and is enclosed in a leather cover. It is available, here at $3.95 per copy.

It explains the theory of kitchen arrangement, setting forth the reasons involved. It gives details on several types and shows how to plan them.

The installation sections go into the minutest detail. They include a list of tools and equipment needed for the jobs and give hints that will save loss of time and effort. The manual devotes considerable space to completing the work surface tops to effect a firm and watertight surface.

Contents of packages quickly identified in master shipping carton—ends all face same way—packages easily removed.

WOLVERINE COPPER REFRIGERATION TUBE

individually packaged in 50-ft. coils

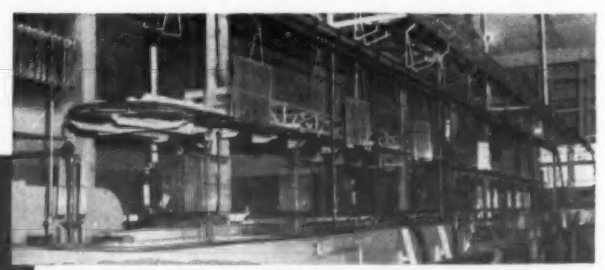
When you open the master shipping carton containing your order of Wolverine Copper Refrigeration Tube, you'll see an orderly array of the new packages, each one protecting a seamless, dehydrated 50-foot coil. With all the ends of the packages facing you—each plainly marked to show type of tube, outside diameter, wall thickness, length, etc.—you can quickly identify the tube you want and easily remove the package containing it.

Remember, there IS a difference in tubing

WOLVERINE TUBE DIVISION
CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
INCORPORATED
MANUFACTURERS OF SEAMLESS NON-FERROUS TUBING
1413 CENTRAL AVENUE • DETROIT 9, MICHIGAN

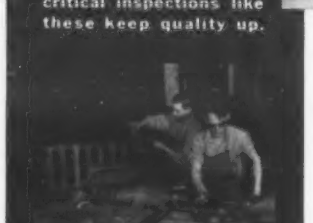
YOUR kind of shelving

...DELIVERED TO MEET YOUR PRODUCTION SCHEDULE

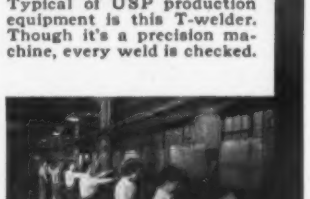


Giant automatic plater handles more than 9000 shelves in 24 hours, performs 17 different operations.

The most complete, up-to-the-minute facilities keep costs down . . . critical inspections like these keep quality up.



Typical of USP production equipment is this T-welder. Though it's a precision machine, every weld is checked.



Although every operation has been checked, shelves are reinspected before going onto the conveyor prior to plating.

This is a pretty big statement, but it's true: "Whatever your shelving requirements — as to size, shape, quantity, or *finish* — Union Steel can produce them *at cost-reducing economy to you.* You'll get top quality every time. And, because Union Steel's production facilities *are* so extensive, your shelving will be delivered according to a pre-determined schedule that suits your production needs to a "T." Furthermore, if you have a design problem, USP engineers can show you how to get more and better shelving for your money. Figured from any angle, it pays to standardize on Union Steel shelving. Let's get together and talk it over. Drop us a line.

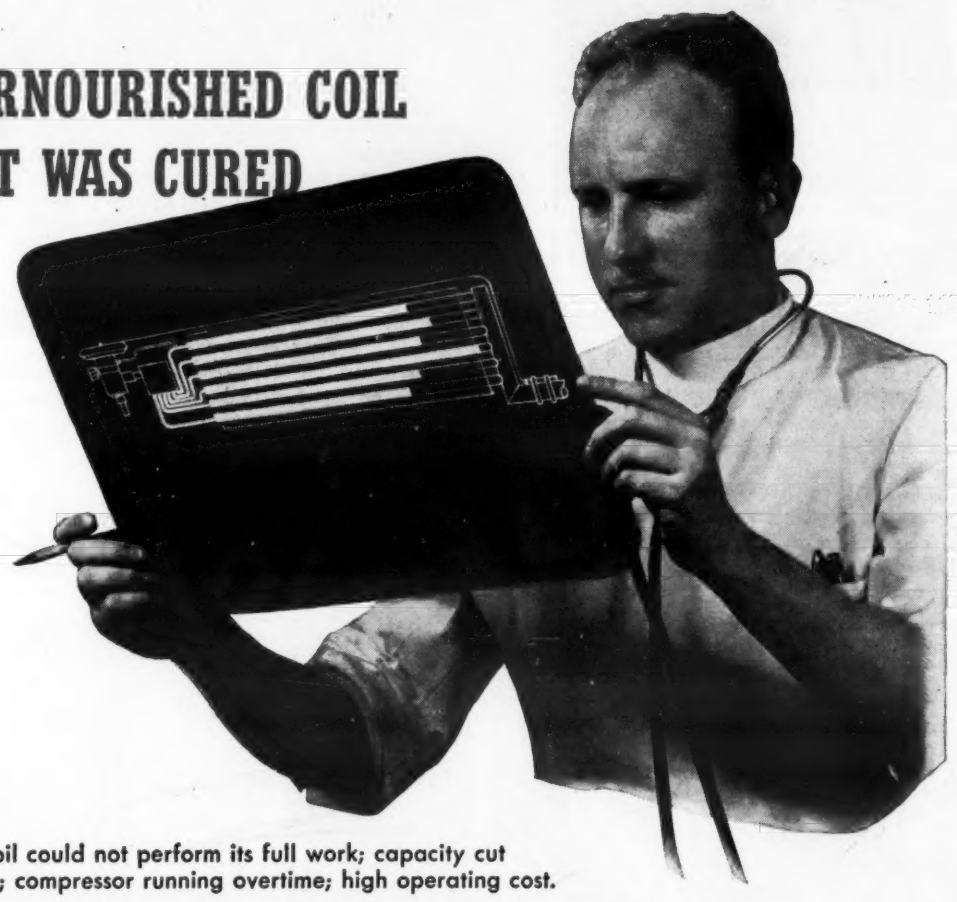
USP HEATING ELEMENT FRAMES MEAN A BETTER OVEN

Typical example of how USP helps you make a good stove better. Enables you to arrange heating coils as *you wish*, by means of round "doughnut" type porcelain bushings that snap in where needed. They assure uniform heat at low cost per oven.

USP

UNION STEEL PRODUCTS COMPANY
ALBION, MICHIGAN

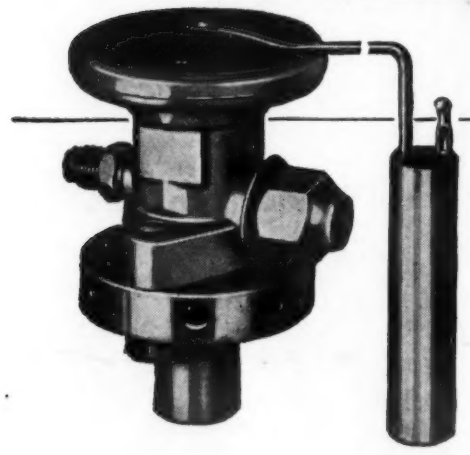
THE CASE OF THE UNDERNOURISHED COIL ...AND HOW IT WAS CURED



SYMPTOMS: coil could not perform its full work; capacity cut ½; compressor running overtime; high operating cost.

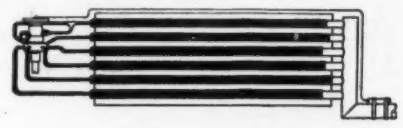
DIAGNOSIS: coil was suffering from malnutrition caused by uneven distribution; "flood-through" one circuit to thermal bulb was throttling all other circuits.

PRESCRIPTION: install one (1) ALCO Multi-Outlet Thermo Valve which feeds all circuits ***equally*** and accurately meters refrigerant at point of expansion ***within valve body.***



RESULT:

complete cure effected; all circuits now functioning full-time; coil capacity restored to normal; running time and operating cost substantially reduced.



ALCO MULTI-OUTLET THERMO VALVES

Available at your wholesaler's for all refrigerants and applications; ½ to 50 tons FREON-12, 2 to 36 outlets. Ask for our Bulletin 180.

3527

ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

see your "DETROIT"
WHOLESALER
for
Expansion Valves
Solenoid Valves
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"DETROIT"
2810
DETROIT LUBRICATOR COMPANY General Offices: 5900 TRUMBULL AVENUE DETROIT 8, MICHIGAN
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"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Float Valves and Oil Burner Accessories
"Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators
"DETROIT"
EXPORT DEPARTMENT—Box 218, Ridgefield, New Jersey

Purchasing Agents Report on Trends In Jan. Business

NEW YORK CITY — Back-order schedules, production, prices, and employment all continued to decline in January, according to a report by the Business Survey Committee of the National Association of Purchasing Agents.

However, the report, which is the composite opinion of committee members, cited one bright spot—the satisfactory "purchased inventory" condition of industry. Reductions in inventory and turnover ratios were said to be on the increase.

Commenting on the downward trend in prices (except for freight rates), the report said a buyer's market exists to a considerable extent, with competition more active in many lines.

Other findings: Producers' voluntary allotments of critical materials are covering more consumer requirements; outside markets are offering price inducements to move inventories; price protection is being obtained on long-term commitments.

Regarding buying policies, it was said that the accent in forward commitments is on 60 days and under.

The report noted that careful screening is required to keep inventories at the lowest possible working minimum. Another point made was that competition does not have to be sought by buyers since stepped-up selling effort in most lines brings it on them.

Take New Servel Posts

W. J. Aulsebrook

J. W. Bostwick

* * *

Aulsebrook, Bostwick - -

(Concluded from Page 1, Column 4)

ent position with Servel. Previous to his association with that company he was general manager of the air conditioning division of Fairbanks-Morse & Co. in Chicago from 1937 to 1943.

Aulsebrook has been associated with Servel since 1926. He came to Evansville in 1928 as a sales engineer and later became assistant sales manager of the electric refrigeration division. He has been sales manager of the division since 1943.

Wisconsin Contractors - -

(Concluded from Page 1, Column 4)

been laid up for months as a result of such accidents.

Corrective legislation also was favored by other Milwaukee officials, including Alderman Milton J. McGuire, common council president; Alfred C. Hass, housing committee chairman; and John F. Kalupa, finance committee chairman. Kalupa told the refrigeration contractors that he would sponsor an ordinance for local enforcement.

The Milwaukee officials directed a barrage of questions at John C. Rehard, chief refrigeration safety engineer of the city of Detroit, when he spoke on controlling installations through a city code and contractor licensing ordinance. Much of the questioning had to do with the operation of a licensing type of ordinance. The Milwaukee officials indicated that they might give further study to the Detroit setup.

W. C. Rehbein of Appleton was elected president of the association by its board of directors. Fred Boehme of Milwaukee was elected vice president, and E. F. Anderson of Milwaukee was named secretary-treasurer. Boehme, Anderson and Norbert Wolf of Sheboygan were named directors.

UEW Suggests Laws - -

(Concluded from Page 1, Column 2)

122% and output per man-hour had jumped by one third.

The UE representative stated that an immediate increase in the minimum wage was necessitated by "already sagging national purchasing power" and the need to obtain minimum living standards for workers in the lower wage brackets.

Nixon cited a recent survey of the electrical machinery industry that showed there had been 90,000 layoffs, mainly in the home appliance field. He said that this segment of the industry is "one of the first to reflect any weakening in consumer purchasing power."

Nixon also testified that the Wage-Hour Act needs sharper teeth so that the government may bring suit for back wage claims on the behalf of workers.

Birmingham Meeting -

(Concluded from Page 1, Column 3)

sions, and a series of nine presentations of "educational briefs" sponsored by Rema.

The Birmingham conference opened at noon Friday, Feb. 4, and wound up on Sunday, Feb. 6, at 4 p.m. All events, except the banquet and entertainment Saturday evening, were held in the municipal auditorium.

Most of the exhibits and many of the educational discussions had already been presented at the previous conference in San Francisco, Boston, and Chicago (and likewise reported in the NEWS), but the servicemen at the conference showed a genuine interest, it was generally agreed by the exhibitors, speakers, and officials who handled the major arrangements and details.

Although intended to be primarily of an educational nature rather than a product show, the exhibit afforded an opportunity to some manufacturers who have just introduced new products to have these on display. Here again, the displays were educational in that they were cut-away models usually showing how the product was made and how it operates.

These new items, which will be described more fully in subsequent issues included a new water-cooling tower and circular unit cooler, strainers, dehydrators, refrigerant service cylinders, a flexible charging hose, cooler door, a new refrigerant oil, hand valve, a combination air and water-cooled condenser, a new auxiliary condenser, welding outfit, and a packaged refrigerator hardware kit.

First event of this conference, following the opening of the exhibits without fanfare at noon on Friday was an RSES session addressed by such people as H. F. Hildreth, president of Rema; Charles Harris, RSES president; Mayor Cooper Green of Birmingham; John Manley, Alabama State RSES president; and then the main events—talks by John Spence of Hussmann Refrigeration, Inc., on cabinet construction and repair, and by A. F. Sawyer of Dole Refrigeration Co. on cold plates.

The exhibits were open Saturday morning and closed during the afternoon session when Paul Reed discussed the heat pump; Dr. Walter O. Walker of Ansul Chemical Co. talked on driers and drying methods; and R. H. Luscombe of Penn Electric Switch Co. discussed electric controls.

The big banquet, dance, and floor show were held Saturday evening at the Thomas Jefferson hotel.

The exhibits were open Sunday from 10 a.m. to 4 p.m. No RSES meetings were held then, but four "educational briefs" were presented, others having been given Friday evening and Saturday morning while the exhibits were open.

In conjunction with this conference the Alabama State RSES Association held its fifth annual convention and elected a new slate of officers and directors as follows:

R. W. Dial of Anniston, Ala., president; N. F. Brown of Mobile, first vice president; P. F. Penton of Mobile, second vice president; John Manley of Montgomery, secretary-treasurer; J. B. Harris of Montgomery, educational chairman; and George Tribble of Birmingham, sergeant-at-arms.

Directors include W. V. Peek, E. L. Merrill, C. S. Tucker, Wm. R. Watson, Paul Renaud, R. M. Bedsole, P. C. Clements, F. G. Jackson, and F. S. Hybart.

West Penn Area Appliance Sales Comparisons - -

(Concluded from Page 1, Column 2)

cleaners, and water heaters were all down.

December, as compared with November, however, showed sales gains for ranges, room coolers, ironers, automatic washers, and vacuum cleaners. Refrigerator and water heater sales were below November totals.

The tabular comparisons between the years 1948 and 1947 and for the month of December, 1948 as compared with December, 1947, and November, 1948, are as follows:

Appliance	1948	1947	Dec., 1948	Dec., 1947	Nov., 1948
Refrigerators	22,209	18,836	1,147	1,705	1,197
Home Freezers	1,802	2,128	350	305	275
Ranges	10,076	7,394	830	973	821
Garbage Disposers	471	205	58	25	50
Dishwashers	468	270	53	29	49
Room Coolers	127	192	1	4	0
Clothes Driers	363	128	94	36	51
Ironers	3,325	3,691	689	701	266
Washers, Automatic	3,486	4,073	316	429	223
Washers, Conventional	18,128	15,327	1,582	1,572	1,304
Vacuum Cleaners	9,925	11,643	1,451	1,883	708
Water Heaters	4,969	4,347	360	449	381
Dealers Reporting	....	....	687	756	606

...it has eight definite advantages

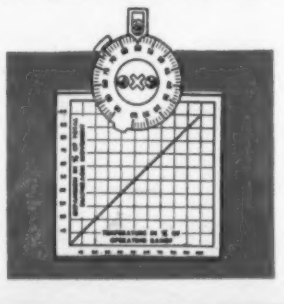
THE SWITCH

Because the Hydraulic-Action element is so powerful in operation, this extra sturdy switch mechanism is used. Entirely enclosed, accurately balanced, it gives positive switch action and long trouble-free service even under hardest, roughest use.

1. RAPID RESPONSE: Hydraulic-Action is so sensitive that it reflects changes in temperature of only *fractions* of degrees.
2. POSITIVE SETTINGS: Control dials calibrated in degrees F. Only Hydraulic-Action, with its straight-line expansion, can be so accurate.
3. SIMPLER INSTALLATION: No need for leveling, mount in any position, mount flush. Two individual controls possible in a single case.
4. WIDER RANGE: Fewer controls needed because of wider range, each control will do more different jobs, require less control stock.
5. PERMANENT CALIBRATION: No temperature drift or metallic fatigue is possible with White-Rodgers controls. Calibration permanent for life.
6. EASY ADJUSTMENTS: All control settings made quickly and easily with only a screw driver. No complicated interlocking devices.
7. NOT AFFECTED BY ATMOSPHERIC PRESSURE: At sea level or at high altitudes in the clouds, controls require no change in calibration.
8. CONSISTENT DIFFERENTIAL: Mechanically set differential remains constant throughout entire control range, no adjustment needed.

STRAIGHT LINE EXPANSION

Unlike other temperature-sensitive elements, expansion of Hydraulic-Action is uniform for each degree of change throughout the entire operating range. Dials are accurately calibrated, settings are positive, with consistent differentials.



WHITE-RODGERS Controls FOR REFRIGERATION HEATING AND AIR CONDITIONING

ST. LOUIS 6, MISSOURI

Norge* for '49

BORG-WARNER QUALITY PRODUCTS

It's the BIG DOLLAR Value

Bigger... Better...

A NEW YEAR

Norge, "champion of independent distribution," enters the new year with complete confidence that 1949 will witness the greatest sales triumphs in Norge's 22-year history.

A NEW LINE

This confidence is the result of two things: first, the commanding position occupied by Norge in the minds of the public; second, the commanding character of the Norge line for 1949.

A NEW FUTURE

The quality products pictured at the right represent the best efforts of master designers, master engineers, master builders and masters of sales psychology. With these products, Norge dealers will realize, more than ever before, that Norge is the BIG DOLLAR value in appliances!

"The best Dealers in town sell Norge"

SEE NORGE BEFORE YOU BUY

©1949, NORGE DIVISION, BORG-WARNER CORPORATION, DETROIT 26, MICHIGAN
ADDISON INDUSTRIES, LTD., TORONTO, ONTARIO
*REG. U. S. PAT. OFF.

alive with STYLE!

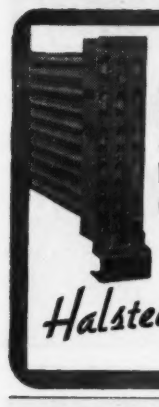
MODEL 110

Amana

FREEZERS • REFRIGERATORS

Say "yes" to every prospect with the complete, smartly styled, better-built Amana line. Write: Refrigeration Division—

AMANA SOCIETY, AMANA, IOWA



Available from 1/2 to 10 H.P.

CLEANABLE DOUBLE-TUBE COUNTER-FLOW WATER-COOLED CONDENSERS

Write for literature

Halstead & Mitchell

BESSEMER BLDG.

PITTSBURGH 22, PA.

36-Story Office Building Will Be Air Conditioned

NEW YORK CITY — A 36-story office building to be erected on the former site of the old Murray Hill hotel at a cost of more than $20,000,000 will be air conditioned throughout, final plans disclosed.

Described as New York's greatest office building of the postwar era, the skyscraper at 100 Park Ave. in the Grand Central area will contain a net rentable floor area of 630,000 sq. ft. It is scheduled to be ready for occupancy early in 1950.

The structure has been designed by Architects Ely Jacques Kahn and Robert Allan Jacobs to permit great flexibility and variations in interior layouts to meet the special needs of each tenant. To this end, one of the combination cooling and heating ducts will go under each window.

New Benarr Firm Distributes Philco In Parts of Mich., Ohio

TOLEDO—Organization of Benarr Distributors, Inc. to handle the Philco line of radios, television, refrigerators, freezers, and air conditioning in 13 Ohio and three Michigan counties has been announced by Benjamin Rubin, head of the new organization.

Rubin recently resigned posts as general merchandise manager and publicity director of Tiedtke's and vice president of Kobacker Stores.

Benarr is taking over the entire Philco Distributors, Inc. organization including offices and warehouse facilities, according to Rubin.

Pear Storage Aided with Use of Activated Carbon

HOOD RIVER, Ore.—Following tests conducted by Dr. Hartman and Professor Hansen of Oregon State college, which reportedly revealed that D'Anjou pears could be kept until late May in activated carbon air-purified storages and still be hard to firm at this late period, Duckwall Bros., Inc., here has installed air purification units throughout its large storage plant.

It is believed that this is the first time that these "gas masks" have been used in pear storages.

The Duckwall plant has a capacity of more than 200 carloads of apples and pears, requiring the installation of eight units, each with a capacity of 20,000 bushels.

Research findings on pear storage behavior indicate that there is a basic similarity between apples and pears. Both fruits give off ripening gases in amounts that vary at different stages in their life cycle. By cleansing the atmosphere of these naturally-evolved gases, the cross-ripening effect is said to be considerably retarded, thus lengthening the normal storage period.

Klein Engineering Organized

MOBILE, Ala.—Klein Engineering Co., which filed incorporation papers in Mobile probate court recently has been chartered to carry on an air conditioning engineering business. Listed as officers were Herman F. Klein, president; Bob Wesley, vice president; and Jack W. Trimble, secretary.

Colorado's First?

Denver Drugstore Needs Cooling To Handle Beauty Shop, Grille, Kitchen Heat Loads

DENVER—Air conditioning, self-serve refrigeration, and huge amounts of refrigerated storage space are unusual features of the new Continental Drug Store recently completed on E. Colfax Ave. here.

The big drugstore, which contains 16 departments, is air conditioned with a 25-ton system keeping the interior at 80° the year-round. A two-stage compressor setup operates at 15 hp. until hot summer weather loads energize a thermostat turning on another 10-ton unit for additional cooling.

Claimed to be the only mechanically air conditioned drugstore in Colorado, Continental's management felt it was necessary because of heat producing departments such as beauty shop, food-service grill, and kitchen. One special duct with anemostats provides boosted cool air along the fountain rail.

At the front of the store is a self-serve frozen foods and ice cream department, consisting of two reach-in refrigerators in addition to two open cases.

Many food items are kept here for the benefit of shoppers after grocery store closing hours. It also contains frozen cakes, cookies, and other dessert items.

In the rear and basement are walk-in refrigerators storing large quantities of frozen foods and ice cream. "The idea is that the housewife who plans a party or has unexpected guests can find everything she needs up until late hours each evening" it was pointed out. "Leaving the dessert and food items on a self-service basis encourages larger unit sales in all cases."

General Appliance Co., refrigeration contractors, installed the cooling and display fixtures.

Refrigerator Preserves Horse Meat At -10 Degrees on Kaiser Mink Farm

OSAGE, Mo.—A custom-built refrigerator which will preserve fresh horse meat at -10° F. is assuring glossy, long-haired pelts from minks bred at the Kaiser Mink Farm here.

The mink farm, which has a breeding stock of more than 1,000 minks on hand and supplies many famous fur coat manufacturers in the East, has found that sharp-freezing of horse meat shortly after the animals are slaughtered, plus turkey heads, geese heads, and other ingredients of mink feeds, helps to insure perfect furs.

Experimentation at the farm, one of the largest in the industry, has proven that the length and durability of the hairs in the animal's coat are directly dependent upon the quality of its food. Freshness, it has also been found, is the prime requisite.

The result of this study was the installation of a custom sharp freeze walk-in box at the farm. The box was built by Gene Schneider Refrigeration Co. of nearby Jefferson City.

The low temperature box, 14 ft. square, 8 ft. high, and 5 ft. deep, is powered with a 3-hp. condensing unit, to hold a constant -10° F. under all conditions.

Horse meat provided by a local slaughterhouse is rushed to the freezer within minutes after butchering, cut into handy sized blocks, and frozen rock hard. Similarly, heads of poultry from a local farm are expressed to the freezer while still warm, if possible.

For feeding, the heads and horse meat are thawed, ground to a fine pulp, and mixed with celery, lettuce, and carrots to a formula carefully worked out by the management.

Through the high speed freezing, all of the vitamins and hormones in the food ingredients are preserved.

To keep a check on the feeding process, control animals are carefully examined day by day, measuring the progress of feeding by counting the hairs per square inch in the pelt. The resulting "gauge" influences the amount of food each mink receives and even the mixture of meat and vegetables.

Curtis

- is now appointing Direct Factory Dealers in territories that are open.
- CURTIS' policy has always been to sell direct to responsible experienced dealers, *not* through intermediaries.
- If you need a complete line of Nationally Known and Advertised Packaged Air Conditioning, Condensing Units and Air Handling Equipment of your own to insure you profits in the coming competitive market, wire or write today.
- Some good territories open.

✓ Packaged Air Conditioning Units 3 thru 15 HP.

✓ Air and Water Cooled Condensing Units ¼ thru 30 HP.

✓ Air Handling Units, Evaporative Condensers, Water Towers to match.

All under one Nationally Known and Advertised Name

Curtis REFRIGERATION AIR CONDITIONING COMMERCIAL

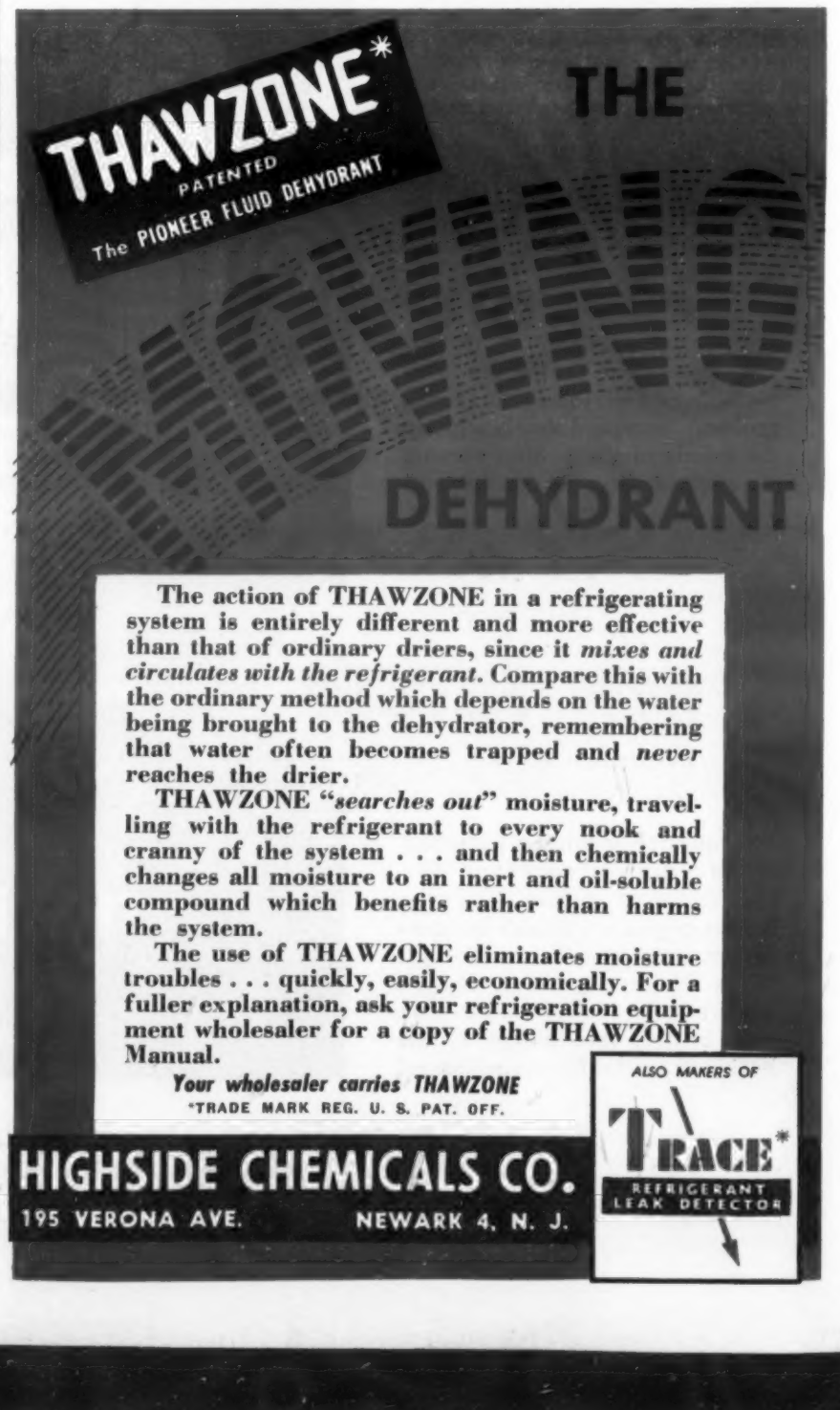
with 95 years of Continuous Successful Manufacturing and highest possible credit rating.

CURTIS REFRIGERATION DIV.

of Curtis Manufacturing Co.

1912 Kienlen Ave. St. Louis 20, Mo.

R49-3



The action of THAWZONE in a refrigerating system is entirely different and more effective than that of ordinary driers, since it *mixes and circulates with the refrigerant.* Compare this with the ordinary method which depends on the water being brought to the dehydrator, remembering that water often becomes trapped and *never* reaches the drier.

THAWZONE "*searches out*" moisture, travelling with the refrigerant to every nook and cranny of the system . . . and then chemically changes all moisture to an inert and oil-soluble compound which benefits rather than harms the system.

The use of THAWZONE eliminates moisture troubles . . . quickly, easily, economically. For a fuller explanation, ask your refrigeration equipment wholesaler for a copy of the THAWZONE Manual.

Your wholesaler carries THAWZONE

*TRADE MARK REG. U. S. PAT. OFF.

HIGHSIDE CHEMICALS CO.

195 VERONA AVE. NEWARK 4, N. J.

ALSO MAKERS OF TRACE* REFRIGERANT LEAK DETECTOR

1 New McCray Self-Service, Single Duty Meat Case

At last—a McCray Koldflo designed especially to display and sell pre-packaged meats—to permit filling from front or rear. Many of the outstanding features of this case make it the ideal choice to meet the specific needs of an ever-growing type of food store. For example—

- Display shelf in top position is 35″ off floor at front for greater impulse sales and easier self-service.
- Introducing a *double* "Blanket-of-Cold"—cold air that refrigerates the product from above and below. Average temperature, 33° to 34°.
- Continuous display by joining two or more 8′ sections end-to-end. Insulation seal never broken.
- All-steel, welded shell tank construction with structural support—typical of the McCray line.
- Stainless steel top takes rough usage, adds to attractive over-all appearance.
- Mirrored superstructure optional—where rear-fill case is not desired.

Two new "special purpose" McCray display cases!

2 New McCray Service–Self-Service Combination Case

Here is the McCray Koldflo "space saver" case thousands of small merchants have been waiting for—a smartly styled unit that saves the cost of two pieces of equipment and extra labor. Check the outstanding features of this unusual McCray Koldflo—

- Increases sales per customer by displaying related food products to be sold on impulse when making service sales of meats and delicatessen items.
- Two cases in one . . . with self-service section removable for easy installation.
- Operates on single unit that gives famous McCray Koldflo "Up-From-Under" refrigeration in meat case . . . and "Blanket-of-Cold" refrigeration in self-service display.
- Matches the regular McCray line in construction and styling.
- Measures 8′ long by 4′ wide; floor area 32 sq. ft.

Write for complete information on these cases

Find out how you can meet the specific needs of an increasing number of your customers in the food field by offering them these new McCray Koldflo display cases. Clip coupon and mail today!

McCray Refrigerator Company, Box A
995 McCray Court, Kendallville, Indiana

Please send me complete information on these two new McCray Koldflo display cases . . . together with descriptive material on the full line.

Name.....

Address.....

City..... Zone..... State.....

THE BEST IN LOW-COST REFRIGERATION

McCray
KOLDFLO

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

Bureau Chiefs hated our guts—and possibly still do, to this day.

Nor can you blame the writer for having some positive opinions about the senselessness of many bureaucratic regulations and time-killing procedures. It always seemed to us that our job was being blocked and stymied by PROCEDURE every time we did a "duty tour" in Washington. We even acquired a persecution complex about it.

Bureaucrats Aren't to Blame: It's Bureaucracy Which Frustrates

Some of the most brilliant and likeable men we've ever met were laboring for the government at the time. In this category we can include all the previously-named Big Shots, along with "Red" Clary, Sterling Smith, Fred Smith, Lee Baker, Henry Dinegar, John Hurley, Ernest Kanzler, Willard Thorp, Lou Maxon, and the legendary Barney Baruch. These fellows were sound, rational, conscientious, patriotic—and never lost their heads.

They were bureaucrats in name only. They were businessmen serving their country full-time, at great personal sacrifice. (Dollar-a-year men are part-time workers in the Washington rat-race.)

As to some others we met on the job, the less said the better. They were anchor-draggers. Among the latter, we found five distinct types:

(1) *The Caspar Milquetoasts.* Transferees from existing government bureaus, they were atypical. They hid behind their files, never made a decision, slowed things up in general, and made themselves as inconspicuous as possible. All they knew how to do was keep their paychecks coming by observing bureaucratic ritual. They were a drag on the war effort.

(2) *The Colonel Blimps.* These "retreads" meant well, but they were too late and too old and too apoplectic to do much of anything but reassure the Congressman who had recalled them from the steeplechase, the front-porch mint juleps, and the duck-blind that all was well in his precinct.

(3) *The Peepul's Cherce.* Here was a problem, indeed. In this category were Communist fellow-travelers sponsored by Eleanor; misfit assistant professors from Harvard, Yale, and the University of Chicago; screwball characters from the Tammany Hall, Hague, Pendergast, Crump, and Kelly political machines; and a large assortment of nepotists who came from nowhere, got nowhere, but had rank because they "knew somebody." Their shenanigans in the Navy, Army, and Civil Service during World War II were a scandal to the jaybirds.

The "Peepul's Cherce" characters were the phoniest and least competent of all the anchor-draggers we met during our tour of duty as a dollar-a-year-man. Also they were the noisiest. Leon Henderson, their idol, was no counterpart. Henderson, for whom we have a great deal of affection and no little admiration, was rumored to be "Eleanor's pet." So all the round-pegs-in-square-holes who squirmed into executive jobs in Washington's nonsensical World War II bureaucracy aped Leon Henderson in such matters as sloppy dress, surprising deportment, and other idiosyncracies.

That's as close as they came to their idol.

Actually, Henderson, along with one or two of his closest collaborators, were so preoccupied with their staggering tasks that they didn't notice what the mimicking fellow-travelers were doing to their reputations. They had a job to do, and they tried to do it despite the interruptions and the annoyances of the Communist Fifth Columners, the Peepul's Cherce stooges, and the fumbling Col. Blimps.

(4) *The Hazed Civilians.* Drafted (or gently removed) from independent businesses, these starry-eyed fellows soon discarded their business attire and their personal independence. After they assumed responsibility for the management of a bureau or an echelon or a "ship," they contracted the Washington inertia disease. They tried hard to break red-tape at first, but in the end they subsided into conformity. The System was too much for them.

(5) *The Rugged Patriot.* Strong men like Clary, Smith, Baker, Maxon, Dinegar, Thorp, and Kanzler stuck to their guns—but what an ordeal they suffered!

Twenty-one hours a day they fought against bureaucratic orthodoxy, fought off self-seeking former "friends" from industry, and tried to understand and interpret the Major Purpose of their dramatically unselfish assignments.

The Seven Sacred Signatures

The Rugged Patriots were hardy and flinty, indeed.

In their past private business experience, when they made a decision it was honored. In their new surroundings, their decisions had to be countersigned (and approved) by at least six other uninformed or partially informed (and often uniformed) bureau chiefs.

No wonder psychiatrists became millionaires in Washington!

The dollar-a-year "expert," the conscientious temporary department head, the Hazed Civilian, and the Rugged Patriot were asked to appease Congress, the Administration, the South, the Big City Political Machines, Labor, West Point, Annapolis, Civil Service, and Henry Wallace (the screwball votes).

If men of this stripe blew their tops in the process, none of us should criticize them.

As one Rugged Patriot puts it: "Some of us wake up screaming only once a month now!"

A small percentage of lifetime government employes (the modest underlings who eschew politics and damned near everything else) can be invaluable to the dollar-a-year man and the temporary bureau chief. They can steer him away from pitfalls and prattfalls. They know more about the "system" than any amateur can ever learn; they know "where the body is buried," and they possess maps of the routes to the "Seven Sacred Signatures."

More intriguing, they sometimes can insure a "good press" for the activities of a new bureau by their strictly cynical methods of "handling" some critical journalist. Here's the pitch:

Every government bureau feels it must have a "good press." Often the publicity man hired by an Army, Navy, or civilian bureau can earn a lot more than the Washington correspondent for a newspaper who has challenged that bureau's right to its share of the budget. Ergo: the critical $4,500-a-year reporter is appointed to a Director of Public Relations position in a government bureau at $10,000 a year. Or: a high-priced radio commentator who has criticized a certain bureau is dropped by his network at "a word" from the FCC.

"If you can't lick 'em—join 'em—confuse 'em—or hire 'em."

Such venalism was practiced over and over again in Washington during World War II. Will it happen again?

No doubt.

"Your observations on the Seven Sacred Signatures, I believe, might stand some amplification," a WPB fellow-sufferer who read the foregoing tells us.

"When I first went into government service as an Industry Specialist, it became part of my responsibility to answer letters. At that time all letters from my department were written over the signature of the Branch Chief.

"However, in order to insure that the person writing the letter was not committing anybody to anything, and to keep the harrassed businessman who had queried us from finding out anything, each letter had to be initialed by the Section Chief of the Operating Section to which it was assigned.

"It was then passed on to (1) the priority specialist; from there to the (2) civilian allocation specialist; thence to (3) a representative of organized Labor; then a (4) Brass Button from the Army and Navy Munitions Board had to initial it; after that (5) a Roosevelt spy from the same organization had to pass on it; and from there (6) it went to the office of the Branch Chief for approval; and (7) a bureau attorney for legalization.

"It was not uncommon for a letter I had written on a Monday morning to be passed on through the Seven Sacred Signatures—and re-written three or four times in the process to overcome objections by one of the people who had to initial it. Eventually it arrived on the desk of the Branch Chief, where it would be signed and mailed (with luck) 10 days after the original draft had been prepared."

The Privileges of Rank

Career bureaucrats who enjoy the perquisites of High Office go for censorship. And, they love flattery.

What's more, they love their easy life. Too many of their hours are spent at the snack bars, restaurants, and "conference rooms" with which every Washington office building is oversupplied. As they stoke their dwindling fires with sandwiches, coffee, "cokes," and cigarettes—accompanied by lovely secretaries, WACS, or WAVES in these hide-outs—they may take a dim view of life "officially," but they enjoy it immensely.

Thanks to the hide-outs (several on each floor) they needn't spend overly much time at work. Then, when they *are* in their offices they can make a great show of concentration on the letters and memoranda which are deposited irregularly on their desks.

The problem is: how to act busy while leading the life of Riley. Well, after they are initiated into the Sacred Rites of the Mysteries of Bureaucracy, they learn how to delay the transmission of memoranda, reports, and queries. Seldom do they make a decision themselves. Rather, they initial these papers, "buck" them to someone else of higher or equivalent rank—and take their time about it.

Speed is the darkest crime. Speed would mean that they wouldn't be able to kill time pleasantly with their cronies and their hand-picked, luscious feminine assistants over coffee or cocktails (the latter on their own time, of course).

No spot on earth has ever witnessed such a concentration of beautiful girls as Washington enjoyed during World War II. No doubt most of these lissome lasses were competent—beauty often is accompanied by brains—but the fact remains that the Chair-Borne Corps, the career Washingtonian "brass-hats," had a wonderful time during World War II.

They delayed the game. They passed the buck. They even suffered Washington's extreme heat in summertime because they "never had it so good."

In the meantime, the temporary officials—those lent to government by business "never had it so bad."

High-rankers in the Army and Navy had the best of everything: steaks, vacations in Nassau, fancy automobiles, dramatic uniforms, saluting and genuflecting personal servants, commandeered country estates and lavish city apartments, etc., etc.

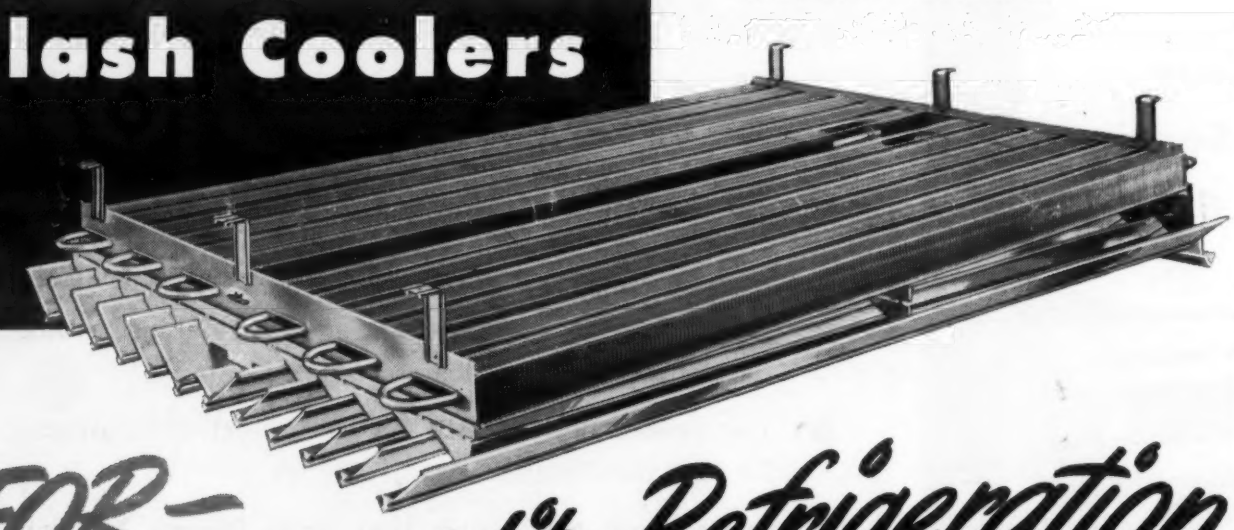
At the end of a hard day (shuffling a few papers and "bucking" them to other idlers and prolongers) they'd take their dutiful assistants to the Willard, the Statler, the Shoreham, or the Mayflower for a cocktail session where they drank, munched the ever-present popcorn or cheese-corn or potato chips, talked importantly, careened, and sometimes made hay while the sun didn't shine.

We repeat: "They never had it so good."

No wonder they did everything they could think of to make "the emergency" last longer.

(To Be Continued)

PEERLESS Flash Coolers



• For superior performance specify all these PEERLESS products: Flash Plates, Flash Coolers, Dome and Unit Coolers, Ice Cube Makers, Fin Coils, Off Center Coils, Expansion Valves and Capacity Boosters. Write for Details.

FOR— High Humidity Refrigeration

• The wide shallow coils of Peerless Flash Coolers insure efficiency in the refrigeration of cut meats, flowers, and all products which must be guarded against dehydration. Large volumes of cooled air are delivered with high relative humidity, making Peerless Flash Coolers ideal for cold storage boxes, walk-in and reach-in refrigerators, etc. Retailers, wholesalers, packers and other users obtain maximum product protection with these easily installed, overhead and out-of-the-way coolers. Copper tubing for Methyl Chloride, Freon or Sulphur Dioxide; aluminum for Ammonia. Standard and special designs.

NOTE THESE ADVANTAGES

• Higher operating back pressure with low flat coils provides higher compressor capacity. More efficient, with reduced operating cost!

• Refrigerant circuit is continuous copper tube with aluminum fins—non-soldered return bends. No Joints!—No Leaks!

• Internal Rifling swirls refrigerant over entire interior surface of tubing, insuring 100% internal wetted surface and 100% coil efficiency.

• Open-louvred drip pan permits free circulation of air through coil surface. Large volumes of cool tempered air flow downward by gravity over stored products.

• A Flash Cooler occupies space not to exceed 16" from ceiling. Quickly, easily installed by bolting convenient hangers to ceiling.

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

PEERLESS of AMERICA, INC.
2901 Lawrence Ave., Chicago 25, Illinois, U. S. A.

Are You Looking for An Easy Way to Handle Stoves, Refrigerators and Freezers

Solve Your Problem with the New

ROLL-OR-KARI Dual Trucks

Patented Step-On-Lift • Folding Handles
Capacity 1000 Lbs. • Shipping Weight 40 Lbs.
WRITE TODAY

THE ROLL-OR-KARI CO.
MANUFACTURERS
ZUMBROTA • MINNESOTA

N.Y. Groups Sponsor Electrical Appliance Salesmanship Courses

BUFFALO—Recognizing the growing need for salesmanship in the electrical appliance trade, the Electrical Distributors of Western New York and the Buffalo Niagara Electric Corp. are jointly sponsoring a basic sales training course for all dealers and salesmen in the western New York area.

The sessions will begin Feb. 14 in the auditorium of the Electric building here. Four groups will receive the training course, as follows:

Group 1, Monday evenings, beginning Feb. 14, 7:30 to 9:45 p.m.; Group 2, Tuesday mornings, beginning Feb. 15, 8:30 to 10:15 a.m.; Group 3, Thursday mornings, beginning Feb. 17, 8:30 to 10:15 a.m.; and Group 4, Friday evenings, beginning Feb. 18, 7:30 to 9:45 p.m. The complete course runs for eight weeks.

The course includes a discussion of opportunities in the appliance field; how to analyze the product and the prospect; how to gain the four customer buying decisions; why customers buy—basic impulses behind every sale; sound films; discussion films; sales presentation forms; salesman's manuals and working out of actual problems.

The following distributors have cosponsored the course: Bergman Norge Co., Inc.; Bickford Bros. Co.; Buffalo Electric Co., Inc.; W. A. Case & Son Mfg. Co.; Sackett Electric Supply Div.; Fay San Distributors, Inc.; Forem Distributors, Inc.; Frigidaire Sales Corp.; General Electric Supply Corp.; Graybar Electric Co.; Nash-Kelvinator Sales Corp.; Kemp Distributor, Inc.; Lee Distributing Co.; Mutual Appliance Distributors, Inc.; Joseph Strauss Co., Inc.; Wehle Electric Co.; Western Merchandise Distributors, Inc.; and L. A. Woolley, Inc.

Toledo Dealers Elect LeFort as President

TOLEDO—New president of the Toledo Appliance Dealers Association is Edmund LeFort, East Side Appliance Co., who succeeds Louis J. Norton, Norton Hardware.

The association also elected Cliff Johnson, Johnson Refrigeration, vice president; David Lehner, Sylvania Appliance Co., treasurer; and Richard Schliebner, secretary. Norton, Frank Rogers, Charles Chambers, Henry Torrence, and William Gravelle were named directors.

Appointed to the program committee were Frank Morgan, David Warsell, Roy L. Randolph, Al King, and James Norton.

LeFort announced that dealers will have Toledo Edison home service personnel demonstrate ranges and ironers in their stores as part of the association's 1949 program.

'It's the Law' In Minnesota!

Unfair, Illegal Trade Tactics Outlined For Minneapolis Appliance Dealers Assn.

MINNEAPOLIS—Some unfair and illegal trade practices in the appliance industry were outlined here before the annual meeting of the Minneapolis Appliance Dealers Association by F. J. Leuben, director of trade promotion for the state department of business research and development.

Leuben said all advertising must be truthful and express facts of the appliance or merchandise in such a way that there is no misleading and reader clearly understands the merchandise offered.

A major problem confronted by many appliance dealers, it was brought out, is the invasion of their sales territories by other types of business firms offering wholesale prices to consumer at retail level or offering to get employes of a firm a major appliance at reduced price.

Leuben explained that the Minnesota Unfair Trade Practices act of 1943 strictly prohibits selling wholesale at the retail level. He said also that any retailer is prohibited from selling merchandise to his employes not considered the type of merchandise sold by the business itself.

An example cited was that of a shoe store which might offer employes refrigerators at a reduction.

Violations of fair trade practices pointed out to dealers by Leuben include such practices as: offering a stated amount as trade-in on an old appliance, say $50, regardless of value of the particular appliance offered for trade by the purchaser; use of word "free" for merchandise offered with appliances in addition to purchase price; concealment of any pertinent facts of the merchandise in advertising; reducing price of appliance but raising trade-in value on old washer or refrigerator, and certain combination price sales or tie-ins unless total merchandise is offered for a single price.

New officers of the appliance dealer group were elected. They are Frank Leatherman, president; Ken Johnston, vice president; E. G. Beecher, secretary-treasurer; and Waldo Burger, assistant secretary-treasurer.

Gordon Volkenant, W. S. Soebbing, Al Lundblad, Harold Huey, and George Holmes were elected directors. Charles Stevenson continues as executive secretary-manager.

Fredrickson Is General Manager For Lincoln Distributorship

LINCOLN, Neb.—Carroll M. Fredrickson, treasurer and office manager of the Korsmeyer Co., distributor of electrical appliances with headquarters here and branch office in Omaha, has been named general manager succeeding L. W. Korsmeyer who died Jan. 6.

Ethel M. T. Korsmeyer, widow of the deceased president, has been named new president of the firm.

Minnesota Rail Freight Boost Will Be Permanent

ST. PAUL, Minn.—The Minnesota Railroad and Warehouse commission has made permanent its order of July 13, 1948, boosting intrastate railroad freight rates up to 20%. The order affects most major industries, including Minnesota's large refrigeration manufacturers.

The 22 railroads operating in Minnesota are also asking for a 5.2% additional increase to conform with a recent ICC order granting that amount on interstate commerce rates.

In making the July order permanent, the commission refused to permit a zone differential in Minnesota for rate-making purposes. The ICC, last year, permitted a 25% increase in that part of the state lying east of a line from Duluth to the Twin Cities to Worthington and the Iowa border, and a 20% jump in the area to the west of that line.

The commission held that the 20% increase would apply in both of the zones.

1. Radiantube Heating Unit
2. Amazing New Magnesium Rod
3. New 10-Year Protection Plan

3 great reasons for greater sales of new Frigidaire Electric Water Heaters

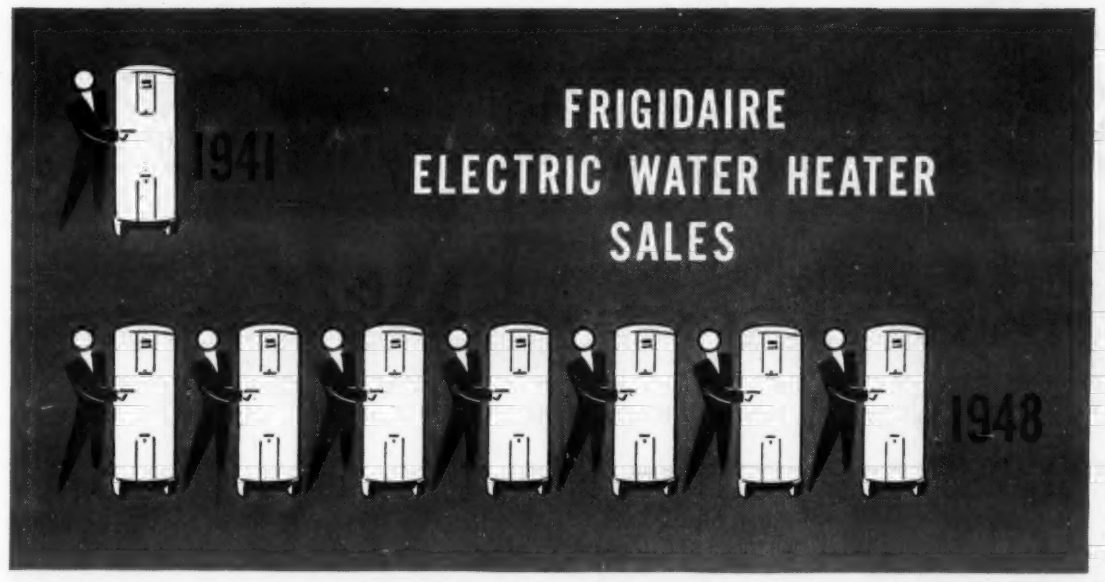
Never before has there been so powerful a selling story on Frigidaire Water Heaters!

Now, in addition to the exclusive fast heating Radiantube Unit, Frigidaire features a specially-built magnesium rod which adds years to tank life. Moreover, this rod makes possible a special *10-Year* Protection Plan. And there are many other features such as glass wool insulation and streamlined design.

All these saleable features come at a time when water heater demand is the highest in Frigidaire history. That means Frigidaire Dealers have a greater profit opportunity than ever before.

To help dealers take full advantage of this opportunity, Frigidaire is now offering the greatest, most complete line of water heaters in its history. They're brilliantly styled, packed with exclusive features, priced to give exceptional value. And they're being supported by strong national advertising.

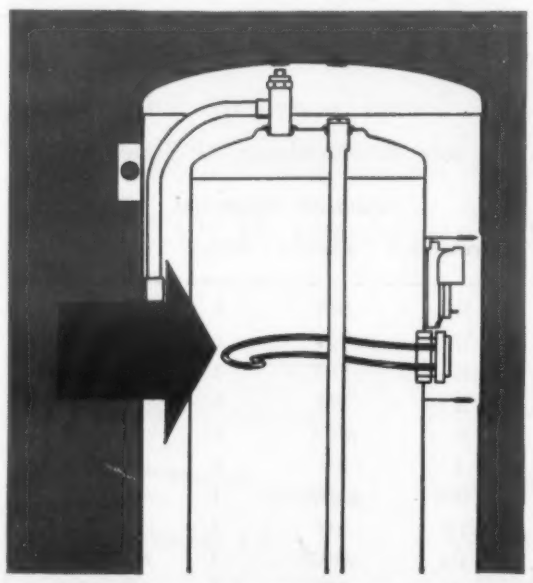
This brilliant line is an important member of the Frigidaire family of home appliances. And it's bringing extra business to Frigidaire dealers right now.



Look How Sales Opportunities Have Grown! In 1948, 7 times as many Frigidaire Water Heaters were sold as in the best pre-war year. And that's only the beginning. Every consumer survey shows that more and more people every day are being sold on the cleanliness, safety and convenience of electric water heating. Frigidaire dealers are going to get a large share of this growing market—because the great Frigidaire line offers the outstanding features, the brilliant styling, the moderate prices that people want.

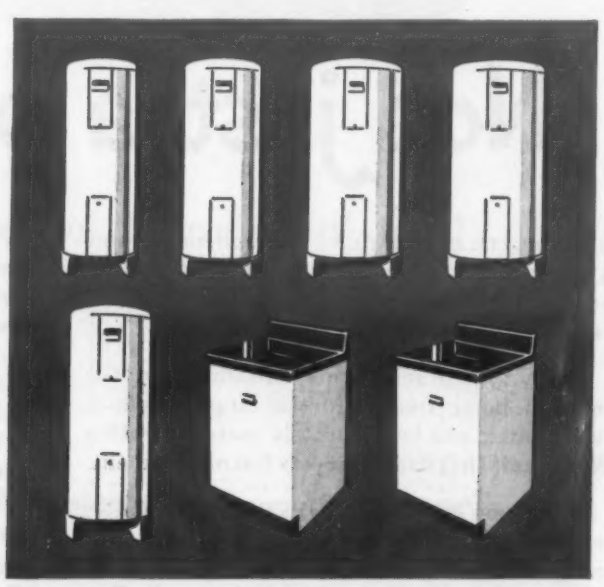
When she's dancing at college proms . . .
Frigidaire
See the Frigidaire
HOT
. . . Frigidaire's 10-year Protection Plan will still be guarding this water heater!
FRIGIDAIRE
Electric
Water Heaters

Look How Frigidaire Advertising Helps Dealers Sell! Backing up salesmen is the largest advertising campaign ever run for Frigidaire Water Heaters: important national magazines, the Sunday night Lum and Abner radio show, literature, direct mail, movie trailers, newspapers and displays.



Exclusive Radiantube Heating Unit. This sickle-shape unit is sheathed in copper, lasts years longer than units of ordinary design. It heats fast and efficiently, *can't* waste current or heat because every square inch of heating surface is in direct contact with the water.

The Amazing New Magnesium Rod. The built-in magnesium rod attracts to itself corrosive elements in the water, effectively checks tank damage in both hard and soft water areas. This completely eliminates need for expensive special tank linings.



Most Complete Line Frigidaire Has Ever Offered. Frigidaire automatic Electric Water Heaters are available in sizes ranging in capacity from 30 to 80 gallons in standard round upright or table-top models. The latter has the exclusive new molded Vitalast tops. Only Frigidaire has them.

Be sure to visit the Frigidaire exhibit at these two great Winter Markets. CHICAGO—American Furniture Mart—Jan. 3-15. SAN FRANCISCO—Western Merchandise Mart—Jan. 31-Feb. 5

DEPEND ON FRIGIDAIRE TO DO THINGS RIGHT

PLAYSAFE
USE CHICAGO SEALS and VALVE PLATES

Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.
Only Chicago valve plates have replaceable seats.
PERFECT BALANCE

CHICAGO SEAL CO.
333 S. HOYNE AVE. CHICAGO 12, ILL.

To Analyze Local Codes

Miller Named Full-Time Secretary of Refrigeration Safety Advisory Group

NEW YORK CITY—The Refrigeration Industry Safety Advisory Committee has announced the appointment of Cyrus W. Miller as full-time secretary and safety code consultant, with offices at 155 E 44th St., here

The committee is sponsored jointly by representative groups of manufacturers of air conditioning and refrigeration equipment, including the Air Conditioning and Refrigeration Machinery Association, the Refrigeration Equipment Manufacturers Association, the National Electrical Manufacturers Association, and the Compressed Gas Manufacturers Association.

Its purpose is to encourage the adoption of uniform safety practices and regulations with respect to refrigeration equipment and, in particular, the nationwide acceptance of the Safety Code for Mechanical Refrigeration, sponsored by the American Society of Refrigerating Engineers and approved by the American Standards Association.

Miller has a varied background in the refrigeration and air conditioning industry, having been supervisor of a utility refrigeration department, vice president and director of a firm of air conditioning contractors, and project engineer and designer of walk-in boxes and home freezers for a manufacturer.

His experience also includes setting up company operations in Europe, North Africa, and western Asia for the foreign division of a major electrical manufacturer.

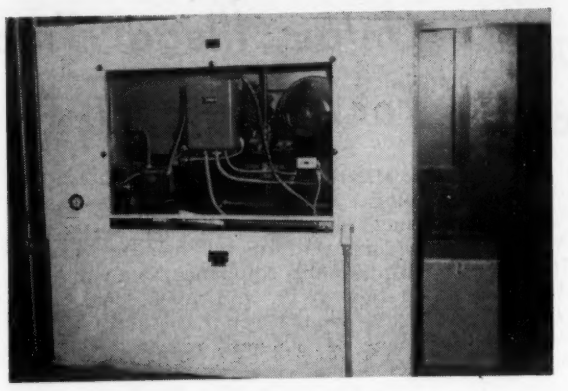
The activity of the Refrigeration Industry Safety Advisory Committee is wholly advisory and educational, and not intended in any way to promote regulations or legislation.

The Committee is, however, undertaking to bring the fact that this code revision is taking place to the attention of state and municipal officials and others engaged in local safety code work, with a view to encouraging the postponement of the adoption of new codes or the revision of existing ones until the completion of the ASA B9 revision.

Upon publication of the revised ASA code, the Committee will encourage its adoption wherever local safety codes exist or are contemplated.

The Committee will also analyze proposed safety codes and legislation affecting the refrigeration industry, working with municipal organizations and agencies to assure that such proposed legislation is in the public interest and will contribute to the more widespread use of mechanical refrigeration and air conditioning equipment.

Neat Installation for a Bakery



Reason for the especially neat appearance of this condensing unit installation is that it is right in the middle of the dough mixing center at the Jefferson City, Mo., Baking Co.

* * *

Ramsey Regional Chief

ATLANTA—Promotion of John E. Ramsey to southern regional sales manager of Philco Corp. covering the company's southern, delta, and Texas divisions, was revealed here recently. Ramsey was formerly manager of the southern division with headquarters here.

Bread Dough Is Held At Even 40° F. with Special Cooling Unit

JEFFERSON CITY, Mo. — Constant quality in commercial bread production is being insured at Jefferson City Baking Co. here by a specialized refrigeration unit which keeps the temperature of bread dough in the mixer at an even 40° at all times.

Before the bakery management, headed by John Michael Sommers, went to Gene Schneider Refrigeration Co. here for the solution, the bakery had to use huge quantities of ordinary ice to hold dough temperature down.

Unless the dough was properly cooled, condensation caused extra wetness, with the result that while passing through the oven, the sugar content of the dough was likely to "burn up," resulting in unevenly baked, misshapen loaves which had to be discarded.

Ice was also difficult to handle, melted too rapidly, and did not keep the temperature at a low enough level.

The solution, developed after much experimentation, has been a 7½-hp. water-refrigerating unit which circulates water cooled to 40° through a cooling jacket around the dough mixer.

The unit is located alongside the dough mixer in its own white enamel steel cabinet, and has thermostat controls to keep the water temperature within ½°.

For maximum economy, water from the pump, after circulating through the mixer jacket, is passed to an evaporative cooling tower in the basement, where heat picked up from the friction of the dough in the mixer is passed off.

It is then passed back to the refrigerating unit, where it is instantly re-chilled to 40° F. before again circulating through the mixer.

The result has been 100% quality bread production, according to the bakery management, and complete freedom from buckled or collapsed loaves.

Magee To Head Sales Of Russell Electric

CHICAGO — W. H. Magee has been appointed general sales manager of Russell Electric Co. here, subsidiary of Raytheon Mfg. Co., Earle C. Ballentine, executive vice president of Russell, has announced.

W. H. Magee

During the past four years, Magee was midwest sales manager of U. S. Gauge Co., division of American Machine & Metals, Inc., with offices in Chicago.

Previously, he served as chief of pressure instruments on the War Production Board in Washington from 1942 to 1944.

Plan To Cool Assembly Room of New G-E Plant

BINGHAMTON, N. Y.—Assembly room of the former Remington Rand plant in Westover will be air conditioned when General Electric Co. starts operations there six to nine months from now.

Much of the renovation and remodeling work at the plant will be done by the Wigton-Abbott Corp. of Plainfield, N. J., which has been given a contract to help prepare the surplus factory for operation.

Not just a pipe dream!

COMPLETE COVERAGE of all condensing unit markets is one of the important and profitable advantages you enjoy when you sell Servel SUPERMETIC condensing units.

Every type of refrigeration fixture, from the smallest home freezer to the largest walk-in refrigerator, can be accurately matched with a Servel unit that exactly meets the requirement.

When you sell Servel SUPERMETIC there's no need to cut price on a "too big" model or take a chance on losing customer goodwill by selling a unit that's "too small." Servel offers every hermetic size from ¼ HP through 3 HP —the most complete condensing unit line in the commercial refrigeration field.

Dealers, distributors and fixture manufacturers are thus assured of maximum profit and complete customer satisfaction on every sale. The compactly designed SUPERMETIC offers more trouble-free performance features. Elimination of belts, pulleys and seal reduces expense and annoyance of service. Every moving part is "force-lubricated." SUPERMETIC is designed for easy installation, and is simple to check.

For complete details, send for free copy of illustrated folder, "Servel Supermetic.' Address Servel, Inc., Division ER, 1902 Kentucky Avenue, Evansville 20, Indiana.

Servel Supermetic Units Are Available In All Sizes

* STANDARD COMMERCIAL

HORSEPOWER	MODEL	NO. CYL.	CONDENSER TYPE
¼	H2N	2	air-cooled
⅓	H2M	2	air-cooled
½	H2B	2	air-cooled
¾	H2R	2	air-cooled
¼	WH2R	2	water-cooled
1	H4F	4	air-cooled
1	WH4F	4	water-cooled
1½	H4T	4	air-cooled
1½	WH4T	4	water-cooled
2	H6R	6	air-cooled
2	WH6R	6	water-cooled
3	WH6J	6	water-cooled

Illustrated at left is a ½-HP air-cooled hermetically sealed model.

**Most sizes available also in low- and high-temperature types.*

Servel SUPERMETIC

100% Self-Service

300 Ft. of Self-Serve Cases Serviced from Four Walk-In Coolers Used In Denver Market

DENVER—The entire produce department is under complete self-service refrigeration in the new giant supermarket completed by Miller Groceteria here at 700 Colorado Blvd. recently.

Over 300 lineal feet of self-serve cases are used in the market, including meats, frozen foods, ice cream, poultry, frozen produce, and fruits, frozen baked goods, and the vegetable units.

The self-serve meat section, largest built in Denver, is 72 ft. long, while produce and frozen foods cases in a single line on the left wall are 110 ft. in length.

Four walk-in refrigerators are required to maintain stock for these boxes on the first floor, plus a large holding room for packaged frozen foods in the basement.

Outstanding is the stainless steel produce display unit, which is 60 ft. long, and contains 30 display sections for all produce items except a few fruits, and dry vegetables.

A blanket of cold air is provided by four compressor units built into the stainless steel housing, with cold plates and coils combined to circulate the air at a steady 45° over the entire interior.

Miller's chose the stainless steel finish over the usual white porcelain, because it does not show the multiple stains which may be expected from scores of vegetables stocked in the unit, store officials said. Plastic signs point out that all vegetables are refrigerated to the proper temperature, and that better tastiness is insured.

Spoilage has almost disappeared entirely from produce figures, according to the management.

All produce refrigeration was custom built for the market and thoroughly tested in the Miller produce warehouse before installation.

Heretofore the Denver chain, which operates 12 markets in the city, had used needle water spray for all produce displays.

Produce is kept refrigerated from the moment of receipt in a huge new plant at the Brighton Blvd. headquarters. There five huge walk-in boxes provide proper temperature for removing field heat.

This is the first supermarket in which every fresh item sold is under self-serve, open refrigeration, the Miller management claimed. "Unless it's in glass, cardboard, or metal, it's refrigerated," it was pointed out.

North Carolina Legislators Introduce Bill That Would Bar Use of 'Wet Type' Beverage Coolers

RALEIGH, N. C.—Restrictions on the sale and use of "wet coolers" were proposed by a bill introduced Feb. 3 in the North Carolina Legislature by Senators J. C. Pittman of Lee and Paul E. Jones of Pitt.

The measure defined wet coolers as a refrigerator or ice box, "so arranged, constructed, and utilized that the containers of beverage being refrigerated are partially or wholly immersed in water."

Under the bill, it would be a misdemeanor for anyone to sell such a cooler for refrigerating beer, carbonated beverages, any soft drink, or milk except at a location where electric current is not available or for use at "some public athletic event or other public gathering."

When wet coolers were used at these places, the bill would make it necessary for them to be cleaned and the water changed at least once a week in locations which have no electric current, and the water changed daily at public gatherings.

Harry Hussmann Jr. To Handle Iceberg Line

CHICAGO — Howard A. Trafton, director of sales for Iceberg Lockers, Inc., has announced the appointment of Harry L. Hussmann Jr., Inc., of El Paso, Tex., as distributor for their products in the states of New Mexico, western Texas, and several eastern counties of Arizona.

Dealers Take Space In War Surplus Plant

SALT LAKE CITY—The former Remington Arms war plant on the outskirts of Salt Lake City has been purchased by a private syndicate and sublet and sold to several different concerns.

Intermountain area refrigeration and air conditioning firms which have either bought or leased warehouse space in the huge plant are Filtair Mfg. Co.; Brady-Milne Appliance Co.; and Star Appliance Co.

Maytag Pays Dividend

NEWTON, Iowa—A regular quarterly common-stock dividend of 25 cents, payable March 15 to stockholders of record March 1, has been declared by the directors of Maytag.

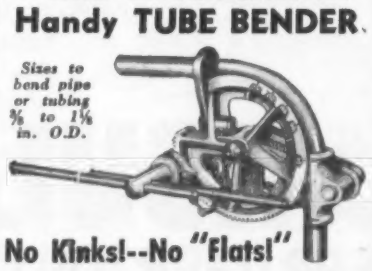
Tampa Firm Becomes Distributor for York

TAMPA, Fla. — Appointment of Automatic Cooling and Heating Co. here as exclusive factory representatives for York Corp. products in Pinellas County has been announced by the local firm.

The firm is owned and managed by Stephen Diczok, former sales manager and engineer for Haggerty, Inc., Florida west coast distributors for York. Larry Worley, formerly with the Carrier distributor in Norfolk, Va., is service and installation supervisor.

Art Griffith, formerly with the York distributor in Canton, Ohio, is commercial and refrigeration sales engineer.

Bend it RIGHT the First Time! —with a HOLSCLAW Handy TUBE BENDER



Sizes to bend pipe or tubing ⅜ to 1⅛ in. O.D.

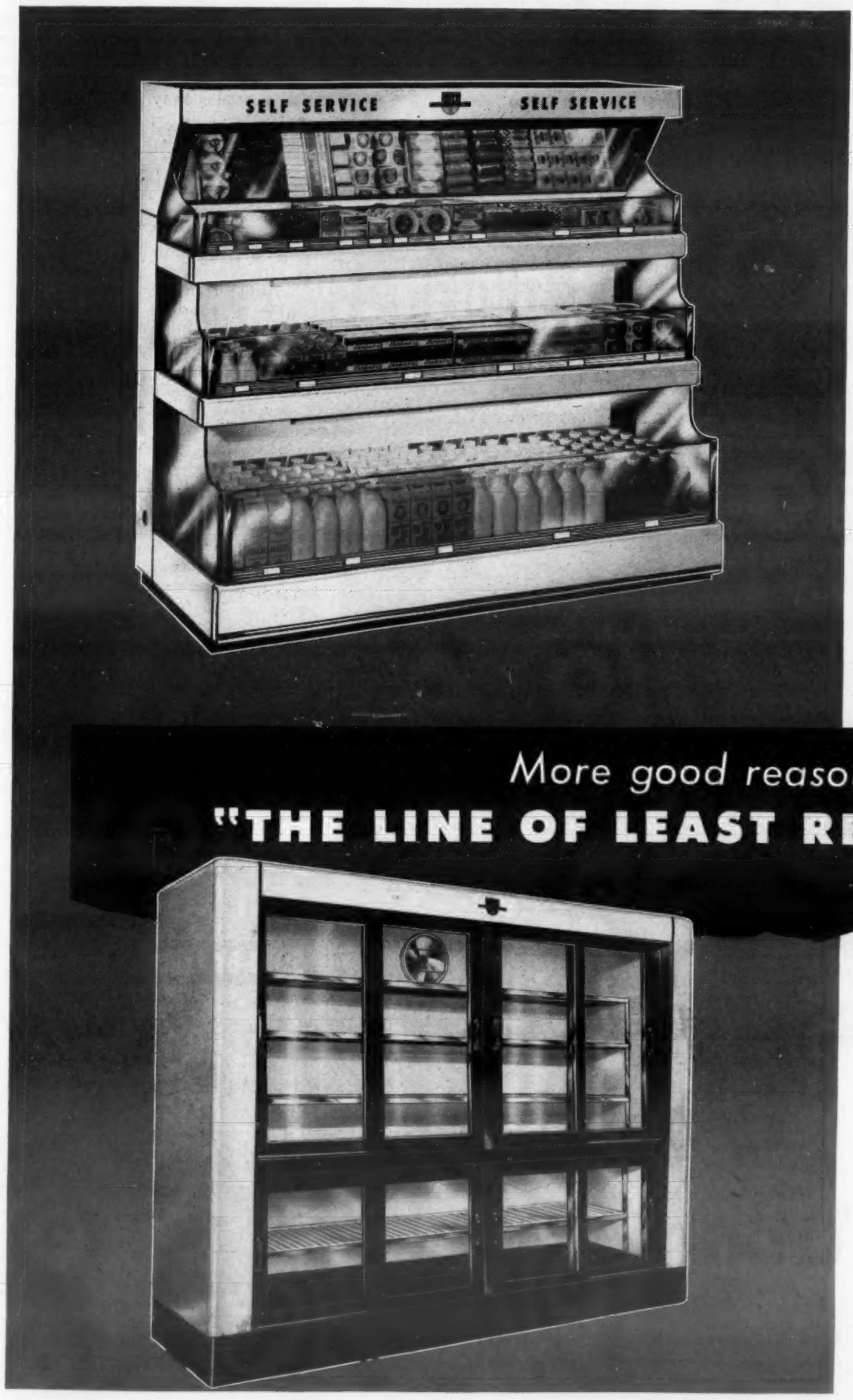
No Kinks!--No "Flats!"

Thousands in use for many years. Light weight, easy to carry, handy to use on the job. Save time! Make smooth bends in iron and steel pipe, conduit, or copper, brass, and aluminum tubing.

Shown above, Model B4-10 for ⅜ in. O.D. tube, $11.25 F.O.B. Evansville, Ind. See complete line Handy Tube Benders at your local supply house, or write

HOLSCLAW BROS., INC.
422 Willow Road, Evansville 11, Ind.

WHITE
PORCELAIN ENAMELLED SHEETS
Made from prime enamelling steel. Other colors available. Can take on a limited number of new accounts for steady supply.
QUALITY PORCELAIN ENAMEL MFG. CORP.
228 Lalor St., Trenton, N. J.



Here are two more outstanding examples of KOCH quality and leadership . . . Models 306 and 3508! The KOCH reputation has grown steadily since 1883. Get the facts and you'll agree—the KOCH line is the quality line—the line of least resistance!

MODEL 306
Three-Shelf Display Case

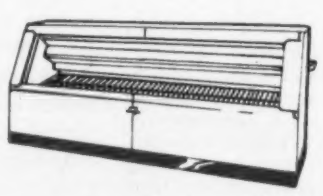
Yes—three *sales-making* shelves—each with its own refrigeration system (natural convection type)—each with its own individual full-length fluorescent lighting. Ends removable for endless display. Full-length plate glass mirror mounted at rear of upper shelf. Exterior front and ends porcelain. Display compartment high-baked white Dulux on coated steel. Steel in and out. Display shelves of steel, finished in high-baked white Dulux. Three-inch thick fibre glass used throughout!

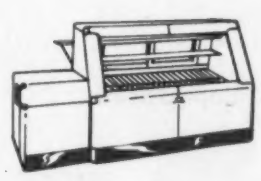
More good reasons why Koch is
"THE LINE OF LEAST RESISTANCE"

MODEL 3508
Dairy Case, Ideal for All Types of Stores

This 8-ft. long Dairy Case, finished in spotless white porcelain on the front, has huge capacity in proportion to the floor space. It is easy to work through the wide doors. And it is easy for customers to help themselves. Shelves are arranged invitingly, with price card molding along front. K-Beam lighting calls customers' attention to the appetizing and tempting dairy products on display. Lower compartment is also refrigerated.

KOCH produces equipment for almost every type of Commercial use!


MODEL 110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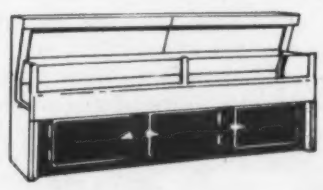
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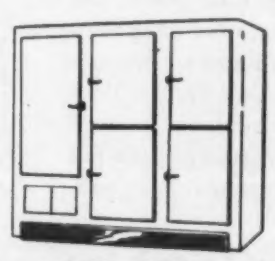
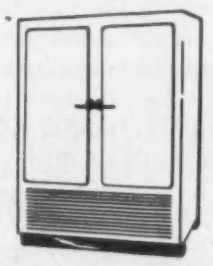

MODEL 3865


MODEL 4725

Send Today for Details and Open Territories

KOCH *Refrigerators*

KOCH Refrigerators, Dept. RN
North Kansas City 16, Mo.

Gentlemen: Please send full information on the KOCH line of refrigeration equipment.

Name_____ Title_____

Adderss_____

Firm Name_____

City_____ Zone_____ State_____

ON THE SPOT

by C. Dale Mericle

'Promotion' Turns Out Big Birmingham Crowd

That Rema-RSES educational conference in Birmingham turned out to be a howling success and the exhibitors were frankly amazed at the turnout—around 1,300—which was far greater than anyone had expected, even up to a couple of days before the show and meeting opened.

There was a lot of hard work on the part of the Birmingham RSES members, however, that pretty much explains the heavy attendance. Admittedly, advance promotion got off to a slow start, but in the two or three weeks immediately preceding the show several RSES members and wholesalers really went to town.

Several individuals started beating the sticks, as it were, by dropping their work and spending all their time personally contacting servicemen about the show, even to the extent of getting the $1 registration fee in advance.

And just before the show there were radio spot announcements and radio news stories promoting the show, which were arranged by Floyd Corbin, the publicity chairman.

* * *

Several refrigeration trade schools in the area gave their students classroom credit for attending the event, some schools even putting up the nominal registration fee for the students.

Local talent did a bang-up job of entertainment for the crowd that packed the banquet hall Saturday night to and beyond the overflow point.

As often happens, fortunately, Frank Carter of Detroit Lubricator wound up playing the piano, but this time he had a partner—Frank Guida, refrigeration dealer from Tampa, Fla. They started out with boogie, Carter handling the beat and Guida at the high end.

Then to Carter's amazement, Guida picked up an accordian and both really went to town. It seems that Guida had played the accordian as a professional for 14 years before getting into the refrigeration business. However, he's never been known to put the "squeeze" on his customers.

Dr. Walker on 'Correct' Positioning of Driers

Doc Walker of Ansul struck a very responsive chord, with me at least, in his discussion about driers and drying methods at the RSES meeting.

"When we started out to study driers 12 years ago we didn't know much about them. Now we know quite a bit about the subject, but not how to spell it. Should it be 'dryer' or 'drier?'"

And then there was this profound observation:

"While we at the Ansul laboratory prefer to have driers in a vertical or slanting position, the serviceman who installs our equipment puts them in anyway he wants to, and much to our amazement, they always work."

The final, sole judgment about the best location or position of a drier, Doc said, "is whether it works."

Problems In Cabinet Repair and Refinishing

John Spence of Hussmann brought up several interesting points for servicemen in his discussion about cabinet construction and repair methods.

It seems there is a relatively new type of a cross-slotted recessed screw head which has come into fairly wide use quite recently. Known as the Reed & Prince head, it has created some confusion because it is quite similar to the Phillips head screw, but the screwdrivers are not interchangeable.

Spence offered this suggestion:

"File off about 1/16 in. from the end of a No. 7 Reed & Prince screwdriver blade and then it can be used on Reed & Prince screws as well as most Phillips head screws."

When removing screws from hinges or door latches on commercial refrigerators put two finishing nails in the top holes after taking out these screws and before removing the rest, suggests Spence.

"Some refrigerators have floating plates within the door, and if this is allowed to slip down, the serviceman will have a long and expensive job taking the door apart to get that plate."

Rust spots which appear on stainless steel are not due to the steel's rusting because it just doesn't, Spence also pointed out. If the stainless steel has been polished with ordinary steel wool, however, small particles of the wool may lodge in the fine crevices on the surface, and these particles may rust.

Scouring with Bon Ami will remove the rusted particles, he said.

Friendly Fooling at Birmingham Conference

R. H. "I-never-bought-a-cigarette" Israel of Virginia Smelting Co. (center) won't have to borrow any for weeks now after getting a carton from Howard Jones of Kerotest (left) and others at the Birmingham conference. Eddie Graff (right) of Ranco even went so far as to contribute two matches to the cause.

Things Are Tough Everywhere

Thursday night, after several of the exhibitors had prepared their booths for the show opening the next day, they relaxed, all except R. H. Israel of Virginia Smelting Co., that is. He was so loaded down with cigarettes he couldn't.

It all started when Israel started out to borrow a cigarette at dinner. The boys decided to lay it on thick, because as E. V. Dunbar, who's been southern representative for Virginia for 12 years, explained, "I've never seen Israel buy a cigarette."

Eddie Graff of Ranco claims, "I've never seen Israel buy a pack of cigarettes in my life and I'm 60 years old."

Anyway, there was a lot of good-natured kidding, not to mention a lot of cigarettes, at that table.

About Purchasing Agents

"Have you heard the definition of an assistant purchasing agent?" inquired "Spike" Thorndike.

"He's a mouse trying to grow up into a rat."

It's just a joke, boys.

Temperature Control Has Critical Role In Cancer Research Center

NEW YORK CITY — How air conditioning is aiding in the fight against cancer was revealed here recently at the Sloan Kettering Memorial hospital.

The hospital, a center of cancer research, contains a small 16 by 20 ft. room called the Incubator Room where living specimens are developed under a temperature that must never vary from 75° F.

A variation of even one degree, it is said, would destroy in a moment the results of months of research.

To maintain this constant equilibrium of temperature, the hospital has had a Frigidaire model WF5150 air handling unit installed, coupled with a Filtrine model 150RAC water cooler. The cooler, it was explained, was required to maintain re-circulating water at a constant 50° F.

The Filtrine cooler, according to the manufacturer, has a super storage feature that permits a refrigeration build up that gives assured temperature consistency during periods of excessive heat with ample margin for safety.

An automatic alarm system is set to go off at any time a deviation of temperature occurs. Since the initial test, it is claimed, the alarm has never sounded.

Wagner STEEL-FRAME Motors

Proved by years of service!

quiet... dependable... trouble-free!

Since 1930, when Wagner started manufacturing steel-frame drip-proof motors, they have been *proved*—by years of hard usage in industry after industry.

Today this time-tested design is available in polyphase motors through 326 frame size. The motor frames are formed of heavy rolled steel, shaped to accurately center the stator core and to provide passages for adequate ventilation. An auxiliary fan draws in air through the openings in the front endplate, forces it through these passages and out through the endplate openings on the drive end. Heat is effectively carried off from all parts of the motor.

These motors are available with either sleeve or ball bearings. They are completely drip-proof when mounted in the normal horizontal position, and by rotating the endplates are still drip-proof in the sidewall or ceiling horizontal positions.

Bulletins give full information on the complete line of Wagner Motors. Twenty-nine branches, located in principal cities, are ready to assist you whenever you have a motor problem. In addition, almost 500 authorized motor repair shops provide speedy, nationwide service facilities.

Wagner Electric Corporation

6441 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

Consult Wagner Engineers on all Electric Motor Problems

• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE PRODUCTS •

M49-2

ANSUL REFRIGERANTS

The Quality Standards of the Industry

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration service engineers on problems which arise, from time-to-time, in the operation of refrigerating systems.

ANSUL REFRIGERANTS are the undisputed quality standards of the Refrigeration Industry . . . and this enviable recognition is protected and maintained by strict laboratory control of every step in the manufacture of Ansul Sulfur Dioxide and Ansul Methyl Chloride.

Every cylinder of Ansul refrigerants is individually analyzed and carefully inspected to safeguard the rigid standards of purity and dryness and to insure maximum safety in handling.

For more than a *third of a century,* Ansul has both pioneered and led the field in the production of sulfur dioxide for refrigeration purposes. . . . Ansul methyl chloride has gained universal recognition in the industry for its unsurpassed quality.

ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

ANSUL SULFUR DIOXIDE, ANSUL METHYL CHLORIDE, ANSUL OILS, KINETIC'S "FREONS"

Schnacke Compressor Models for 1949 Claim 5 Improvements

EVANSVILLE, Ind. — Five improvements have been made in its 1949 model compressors Schnacke, Inc., has announced.

The changes are: flat top piston in place of oval head piston, new-type tempered steel piston rings, replaceable stationary shaft seal rings, new-type manifold on Model F, and new method of providing flowing lubrication to shaft seals on T and F models.

Schnacke said the flat top piston was adopted to increase operation efficiency for low temperature.

"Closer tolerances can now be maintained between piston heads and valve plates," the company explained. "This reduces the re-expansion of gas when operating with low suction pressure and increases the efficiency for low temperature."

Two tempered steel piston rings are now being used instead of the former three cast iron rings, one of which was an oil ring.

"It has been proven," Schnacke stated, "that these close fitting rings do not need any wearing-in since they fit properly immediately. Under these conditions, the third ring was not needed."

Use of the new-type rings is said to reduce friction loss, add to the longer life, and increase pumping efficiency of the compressors. The rings are of the same type used in high-priced racing cars.

The replaceable stationary shaft seal rings simplify the changing of the seal assembly, it was pointed out.

"Formerly, this ring was pressed into the bearing plate and when it became necessary to change seals, it was necessary to change the entire bearing plate," Schnacke said.

"The improvement now makes it possible to change the stationary steel ring which is held in place by an adaptor plate and gasketed with a neoprene ring and is so arranged that immediately it fits true with the shaft against the bearing plate."

The new-type manifold on the Model F is so arranged, it is claimed, that it distributes the gas equally to both banks of cylinders in equal volume.

"The suction valve fits on top of this manifold and can be placed with the sweat adapter in four different positions," the company stated. "Formerly, the suction valve was applied directly to the cylinder block and the cross-over manifold was installed on the back of the cylinders, feeding the gas through one bank of cylinders first and through the cross-over into the other bank."

Describing the method of providing flowing lubrication to shaft seals on T and F models, Schnacke said the oil opening to the seal has been placed further forward, forcing the oil into the seal and back through the bearings into the crank case, "providing a definite movement of oil and heat at this critical point."

Battle Creek, Mich. Appliance Dealers Seek Installation Agreement with Plumber Group

BATTLE CREEK, Mich. — The Battle Creek Appliance Dealers Association has announced that it is ready to meet with local master plumbers to work out a solution to installation problems, which, the association believes, has retarded the sales of appliances here.

The association had previously written a letter to the city commission charging that some plumbers refused to install appliances they had not sold.

Nine plumbing firms denied to the commission that they were attempting to monopolize the business and stated that delays in installations were due, rather, to a local shortage of plumbers.

The group declared that they would accept applications from appliance dealers for installations and would expedite their completion.

Leo Esch, president of the appliance dealers group, declared that the association was now ready to meet with plumber representatives to determine how long it will be necessary to wait from the time of application until the appliance is installed.

He said that the dealers would also like to get the plumbers to set up a system whereby if one plumber cannot handle an installation immediately, he will turn it over to another.

Yount Is President of ELWP

PITTSBURGH — C. Greer Yount, group manager of Sears, Roebuck & Co.'s local stores, was installed as president of the Electric League of Western Pennsylvania at that group's annual banquet here recently.

Other new officers installed were C. W. Hartenfels, vice president; T. O. McQuiston, secretary; and W. W. Satchell, treasurer.

FTC Sets Up Procedure To Find Discrimination In Quantity Discounts

WASHINGTON, D. C.—The Federal Trade Commission announced recently that it has set up procedures to determine at what point quantity discounts become discriminatory or monopolistic.

The FTC pointed out that it has had for a number of years the power to limit quantity discounts which are found to retard or stifle competition. This power is granted by the Clayton Anti-Trust Act.

The commission said that the procedure provides for a full investigation whenever it believes such action should be taken or some interested party requests such action.

A spokesman for the FTC admitted that the procedure to determine the point at which quantity discounts become illegal, is "very complex." He said that complete text of the rules of procedure are available to businessmen on request.

All Consumer's Credit Outstanding at End of '48 Was Nearly $16 Billion

WASHINGTON, D. C.—Consumers owed through instalment credit, charge accounts, or loans, almost $16 billion at the end of 1948, the Federal Reserve Board reported recently. At the end of 1947, they owed approximately $13.5 billion.

The year end total of $15,957,000,000 set a consumer credit record, according to the board. Of this, $8,229,000,000 was in instalment credit.

Instalment credit on items other than automobiles (including appliances, radios, television, etc.) reached $2,165,000,000 last Dec. 31, as compared with $1,688,000,000 on the same date in 1947.

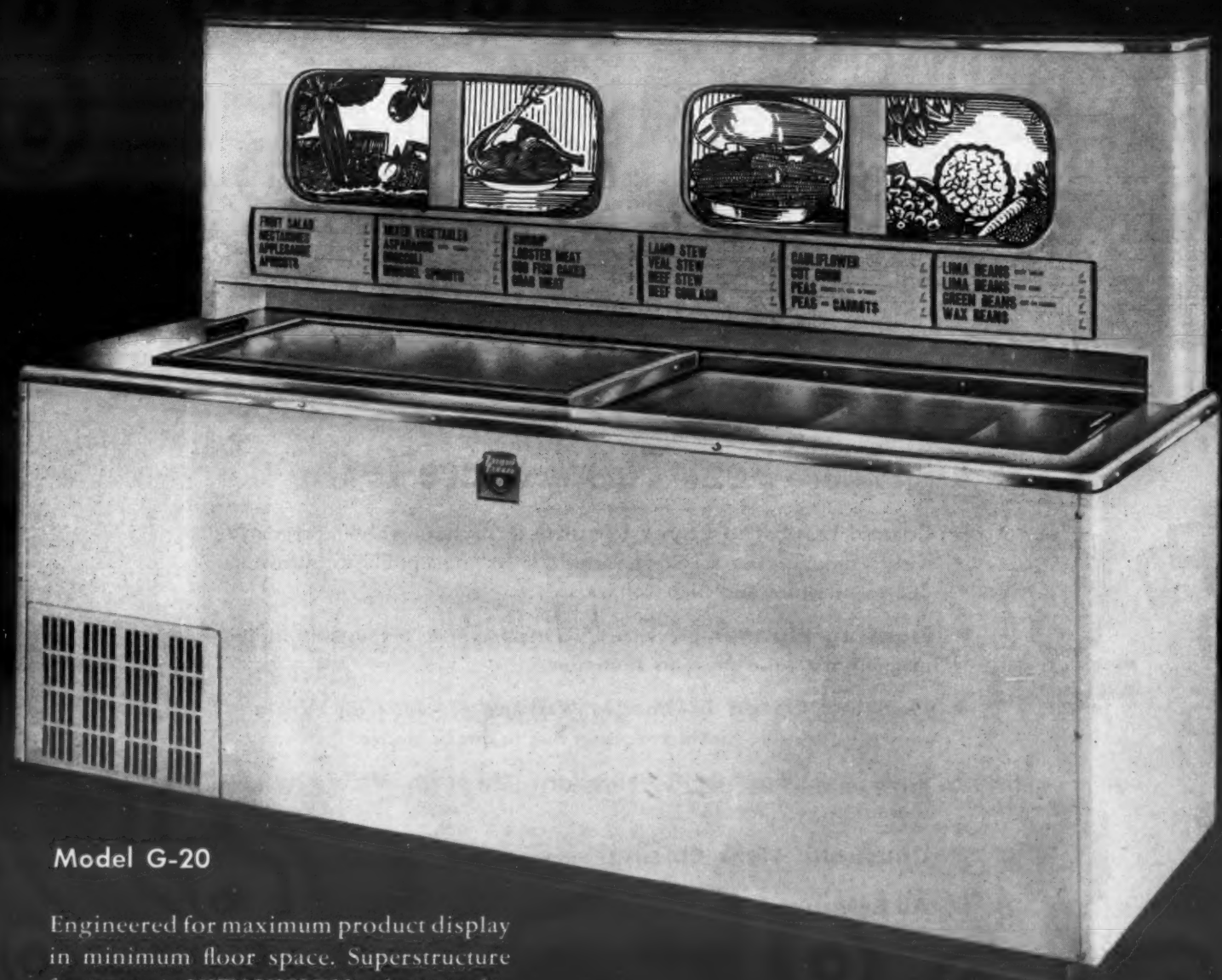
Under the influence of Christmas buying, the amount of credit outstanding on Dec. 31 as compared with the end of November rose by $618,000,000.

WILSON
REFRIGERATION, INC.
• FARM AND HOME FREEZERS
• REACH-IN REFRIGERATORS
• WALK-IN REFRIGERATORS
• FARM MILK COOLERS
DIVISION OF WILSON CABINET CO., INC.
SMYRNA • DELAWARE

SHANK REFRIGERATION PRODUCTS

Most Dependable
SHANK SEMI-STEEL SHUT-OFF VALVES
Highest grade non-porous metal—full size ports—clean cut threads. Back seated stem. Shank design base—perfect alignment. Long life packing ring.
See your jobber or write for prices.
CYRUS SHANK CO.
631 W. JACKSON BLVD., CHICAGO 6, ILL.

NEW!.. Frigid-Freeze Glass-top Cabinet
FIELD-TESTED AND PROVEN FOR MORE PROFITABLE MERCHANDISING OF ICE CREAM AND FROZEN FOODS



Model G-20

Engineered for maximum product display in minimum floor space. Superstructure features 4 VITAVISION pictures for extra "buy-appeal". Feather touch, roller-type triple Thermopane glass doors for full vision and fast selection.

DISTRIBUTORS:
Seeking a profitable line? Write for details.

A LEADER IN THE INDUSTRY
Frigid-Freeze
A DIVISION OF NOMA ELECTRIC CORPORATION
NEWARK 5, NEW JERSEY

With Repair Calls Taking Servicemen Up to 120 Miles From Store, Dealer Trains Crew To Double as Salesmen

JEFFERSON CITY, Mo.—Giving refrigeration mechanics an opportunity to sell as well as render repair service has helped the Gene Schneider Refrigeration Co., combined refrigeration service, major appliance, and commercial refrigeration dealer here, to make the most of a five-county central Missouri rural area.

Gene Schneider, a veteran of 18 years in refrigeration service and 8 years of appliance retailing, has always specialized in "selling the farm market."

His 12 rolling-shop refrigeration service trucks regularly make repair and installation calls as far as 120 miles from headquarters, and are familiar sights on the back roads of surrounding counties.

HANDLES COMMERCIAL

The firm has become one of the largest refrigeration dealerships in central Missouri, handling commercial refrigeration, package air conditioning, heating, domestic appliances and custom refrigeration for food retailers.

All sales are based on the excellent reputation earned by the service department, according to Schneider. The company accepts calls from many miles out in the country. These are scheduled by a dispatcher and answered by "rolling shop" trucks which carry specially-designed compartments for parts, gas drums, tools, and other equipment.

Schneider developed the trucks himself, after long experience with remote-location service calls, when return trips for wanted items were out of the question. Each truck includes ample space for appliance delivery between the two tall compartmented sides, and every run is scheduled to eliminate waste miles and "doubling back."

FAST SERVICE A SPECIALTY

Because service dependability has built his sales business, Schneider bends over backwards to get every repair call answered in a minimum number of hours.

Rates are purposely kept moderate, amounting to $2.25 per hour on week days, time and a half on Saturdays, plus a charge of 10 cents per mile both ways where the customer is located outside of the Jefferson City limits.

With a staff of 12 mechanics on duty, there is always sufficient personnel to meet any emergency, either with commercial or domestic refrigeration.

Where it is impossible to make the necessary repairs on the spot, Gene Schneider maintains a large basement appliance shop, where refrigerators, along with other major appliances, can be torn down, repaired, and tested on an assembly line basis.

The headquarters store also maintains a huge parts department and counter which stocks parts for almost every known refrigerator and washing machine.

After building the appliance store in downtown Jefferson City eight years ago, Schneider went aggressively into merchandising. Franchised with several well-known appliance lines, he has set up a system whereby "everybody sells" to capitalize on every contact.

First, the refrigeration firm is a heavy user of billboard advertising and radio promotion, all slanted at the small-town food merchant, home appliance owner, and other refrigeration users "out in the tall timber."

The 12 servicemen who are in closest contact with future appliance and refrigeration prospects all attend special sales training classes held twice a month. The classes are concentrated on a particular appliance or piece of commercial refrigeration equipment. Each serviceman has learned the sales field thoroughly, operating details of all appliances, and is paid a worthwhile commission on all appliances or eqiupment sold.

SERVICEMEN TRY TO CLOSE OWN SALES

Out on the job with their "rolling shops" mechanics attempt to close any prospective sales themselves. If this isn't possible, a report of the prospect is included in the worksheet turned in at the end of the day, and the name turned over to one of nine specialty salesmen.

Divided among commercial refrigeration, heating, and domestic appliances, the sales crew are all furnished automobiles and gasoline by the company. They work in specified territories and each man is assigned all leads originating from his own area. Experienced closers, the sales crew follow up tips from the servicemen, and from radio, newspaper, and direct mail advertising

In addition to locker plants, ice houses for ice companies, custom walk-in boxes for food retailers, the Schneider organization has installed many self-service meat, produce, and dairy product cases in central Missouri markets, and specialized refrigeration in industrial plants and bakeries. The company maintains all warranties.

DISPLAYS AT PICNICS

One of Schneider's favorite stunts to attract domestic appliance prospects consists of building complete displays at county fairs, picnics, or outings, where several hundred farmers are likely to congregate.

In return for permission to set up the appliance display, Schneider furnishes bottle gas or electric cooking ranges for the food served, and gives handsome attendance prizes.

Last year two home freezers were awarded at county fairs, and other appliances donated for a county theater promotion. From such events, the company gets hundreds of worthwhile prospects, Schneider said.

Built for Long Range Service

This heavy-duty service truck is one of 12 operated by the Gene Schneider Refrigeration Co. in Jefferson City, Mo. designed to travel long distances over back country roads. The truck is equipped with specially designed compartments to hold all the equipment a serviceman could possibly need to satisfactorily complete a repair job—a requirement in a territory where returning to the shop for a needed tool is out of the question.

Supplier Opens Self-Serve Refrigeration Department

PITTSBURGH — Pennsylvania Industrial Supplies Co., Inc. here has announced the opening of a wholesale refrigeration department of the self-service type in conjunction with its brass and copper warehouse.

William A. Allen, formerly manager of Jos. Woodwell Co.'s refrigeration department, will manage the new department.

Roy Helminski Wins Toledo RSES Tube Bending Contest

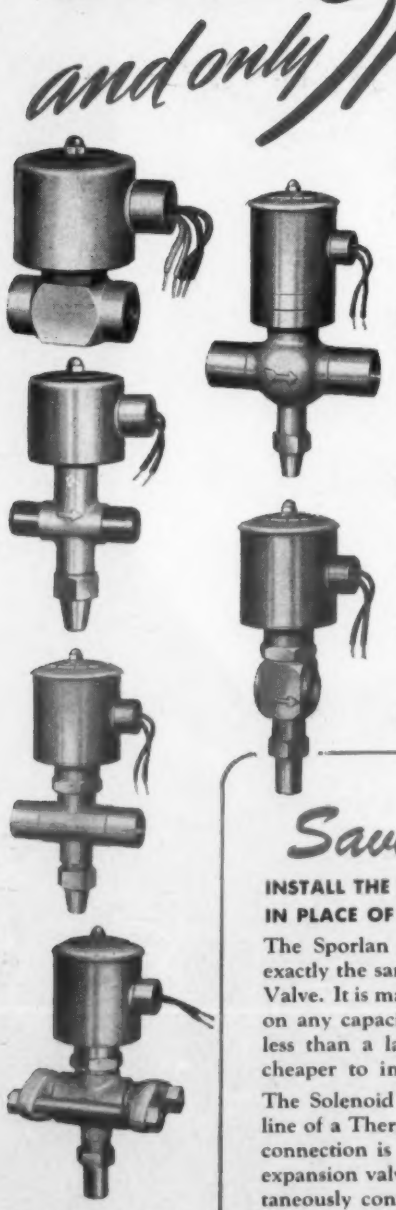
TOLEDO—Roy Helminski, refrigeration service manager of the Kroger Co., here, won first place in the tube bending contest held at a recent meeting of the Greater Toledo Chapter No. 1 of the Refrigeration Service Engineers Society.

Runners up in the contest were Charles Askey, student at Commercial School, and F. Gouittere, refrigeration serviceman, Kroger Co.

Fittings used by the contestants, tube bending problem and prizes for the winners were supplied by the Imperial Brass Mfg. Co.

The Real Difference in Solenoid Valves is Performance

and only Sporlan has all these Peak Performance features!



- **Cotton Insulated Layer Wound Coil** thoroughly impregnated with a special water repellent varnish, is less susceptible to burn-outs due to moisture and high voltage.
- **Floating Plunger** prevents valve sticking open because of residual magnetism . . . also prevents humming.
- **Floating Piston in Larger Valves** prevents coil burn-outs caused by possible sticking of piston due to dirt or sludge.
- **Free Passage of Refrigerant Through Valve** assures minimum pressure drop.
- **Unusually Tight Closing** because of perfect alignment of parts.
- **All External Parts Cadmium Plated . . All Working Parts Stainless Steel** completely eliminates All Corrosion problems.
- **Accessibility of Parts** makes for easier inspection and cleaning.

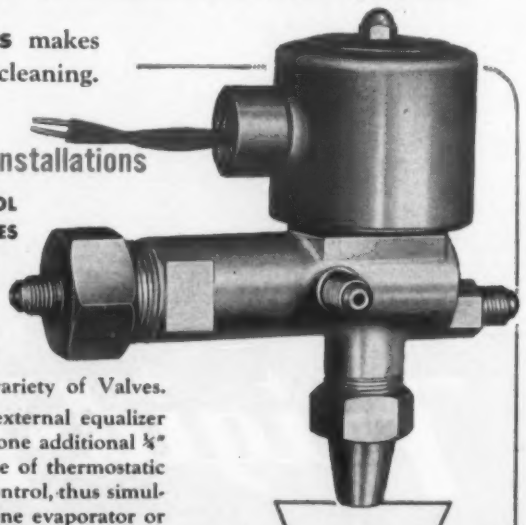
Solenoid Valves for all Liquid Line capacities up to 25 tons Freon-12...50 Tons Methyl Chloride ...40 Tons Ammonia.

Save Money on large installations

INSTALL THE SPORLAN SOLENOID PILOT CONTROL IN PLACE OF LARGE CAPACITY SOLENOID VALVES

The Sporlan Solenoid Pilot Control is used in exactly the same manner as a liquid line Solenoid Valve. It is made in only one size and can be used on any capacity job no matter how big. It costs less than a large Solenoid Valve, is easier and cheaper to install, and eliminates stocking a variety of Valves.

The Solenoid Pilot Control is connected in the external equalizer line of a Thermostatic Expansion Valve and only one additional ¼" connection is necessary. Any number and any size of thermostatic expansion valves may be connected to one pilot control, thus simultaneously controlling the action of all valves on one evaporator or entire plant. Its coil is energized through any two-wire control device.



★ SPECIFY SPORLAN WHEN ORDERING FROM YOUR WHOLESALER AND GET PEAK PERFORMANCE ON ALL INSTALLATIONS

Write For The Interesting Booklet "4 MEN ON A CYCLE"

SPORLAN VALVE CO.

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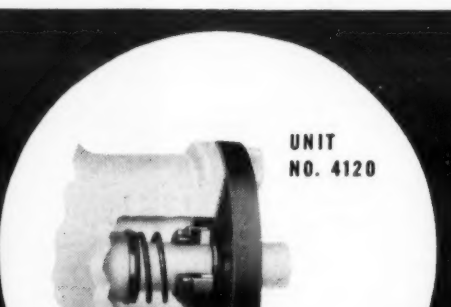


ROTARY SEAL

REPLACEMENT UNITS

for Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors . . Tested by time, proved by performance over 18 years . . *Simplicity in construction—easy installation—efficient operation—economy*—you get every one of these important features in ROTARY SEALS!

AVAILABLE IN OVER 848 MODELS

THE mechanical seals for ROTARY SEAL COMPANY rotating shafts

AT ALL LEADING JOBBERS

"Seal with Certainty!"

2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE
MONTREAL 28, QUEBEC, CANADA

Tulsa Dealers Ask 10% Down, 24 Mos.

TULSA, Okla.—A 10% down payment and 24 months to pay are the consumer credit terms that the Tulsa Appliance Dealers Association would like to see replace present Regulation W restrictions.

The association recently made its desires known in telegrams to every member representing Oklahoma in Congress.

Roy Myers, secretary of the group, said, "There are literally hundreds of young couples with good credit who could take advantage of such terms." He pointed out that many say they cannot meet the present terms of 20% down and 15 months to pay.

Puzzle Contest Builds Dealer's Mailing List

BUFFALO—Motor Tire & Electric Co., 823 Main St., attracted wide interest and built up a good mailing list by conducting a cross-number puzzle contest with a variety of major and small appliances as prizes.

The contest was launched with a newspaper advertisement which carried a cross-number puzzle. Readers were invited to work out the puzzle and send it to the store within one week. First prize was a choice of a television set, refrigerator, gas range, or washer. Second prize was a mixer, and third prize a table radio.

Additional credit awards were made to everyone answering the puzzle correctly.

Two Distributors Named For Lockrator Line

MASON CITY, Iowa—Appointment of two midwest distributors of Lockrator domestic refrigerators has been announced by M. C. Stoddard, president, Stoddard Mfg. Co. here.

The new distributors are: Paxton & Gallagher Co. of Omaha, Neb. and the White Refrigeration Co. of Des Moines, Iowa.

The Paxton firm will cover the state of Nebraska. It has branches in Hastings and North Platte, Neb. and Deadwood, Rapids City, and Belfoursche, S. D.

White, which till now has been strictly commercial refrigeration and parts distributor, also has a branch office in Davenport, Iowa.

National Home Laundry Week Returns In June

CHICAGO—The American Washer & Ironer Manufacturers Association meeting here last week voted special assessments to undertake promotional and research projects in the form of (1) a resumption of "National Home Laundering Week" and (2) a study by an independent research organization to find out the extent of dangerous bacteria in certain types of home laundry operations.

The week of June 6-13 of this year will be National Home Laundering Week, and the association voted an initial appropriation of $25,000 for the promotion, and the individual manufacturers are expected to give it added support.

The National Sanitation Foundation was given a three-year grant of $10,000 a year to make a research study on bacteria in washers.

A report by the industry's Trade Practices Committee warned that the members would soon be facing situations that would demand fair trade practice regulations, and called for institution of voluntary fair trade practices, or failing that, submission of a proposed plan to the Federal Trade Committee.

H. Paul Nelligan, president of Easy Washing Machine Co., was elected president of the washer association for 1949. First vice president is C. G. Frantz, president of Apex Mfg. Co.; second vice president is O. A. Lenna, president of the Blackstone Washer Mfg. Co.; third vice president is Neil Gallagher, president, Automatic Washer Co.; and treasurer is Howell Evans, vice president of Hamilton Mfg. Co.

Light Bulb Lights Up Range Demonstration

CHICAGO—An inexpensive method by which dealers can dramatize the plug-in outlets on Hotpoint electric ranges by using an ordinary light bulb is outlined in a dealer bulletin issued by the sales planning department of Hotpoint, Inc.

After plugging a two-pronged socket into the lower appliance outlet, the dealer screws in the light bulb to demonstrate visually for the consumer that this outlet is always "hot."

Transferring the socket and bulb to the upper outlet, the dealer then can show how coffee makers, toasters, and other appliances can be automatically regulated by the range timer clock, setting and re-setting the timing device.

The bulletin points out that the appliance outlets can be used as an "assistant salesman" while the dealer is explaining other range features to the consumer.

'Smart Stuff' Ads Move Appliance Odds & Ends

INDIANAPOLIS, Ind. — Fairway appliance store here has disposed of odds and ends of major household appliances by making use of a full page of "smart stuff" want ads.

Under the subheading "Some More Appliances," one of the want ads read: "It's all we have left in apartment size electric ranges but we'll part with it for $99.50. Has 2 standard units and 1 large hi-speed unit. Was $119.50."

Another one reads: "We are stuck with just one of those Garod table model radios. Nobody volunteered to take it off our hands at $24.95. It's red and ivory plastic and it plays. Will you volunteer for $16.95?"

Another one: "We believe our stock boys have been using this $129.95 Philco radio phonograph for a wrapping counter for the past year. It sounds as well as ever—perhaps a $45 savings will tempt you to try your hand at polishing it up. Yours for $94.95."

NRDGA Offering 1949 'The Buyer's Manual'

NEW YORK CITY—The merchandising division of the National Retail Dry Goods Association has recently published a revised, 1949 edition of "The Buyer's Manual" for use by department store principals, merchandise managers, and buyers.

Association members can buy the guide for $3.75 while non-members must pay $5.25.

Young Heads Sales for Kelvinator In Chicago

CHICAGO—Appointment of John L. Young as household sales manager in the Chicago zone for the Kelvinator Div., Nash-Kelvinator Sales Corp. was announced here recently.

Young succeeds E. J. Catlin, who was promoted to zone sales manager. Young, formerly appliance sales manager for the Interstate Department Stores, had previously worked for Kelvinator as factory representative on major accounts.

Dept. Store Sales Hold Up Near January Close

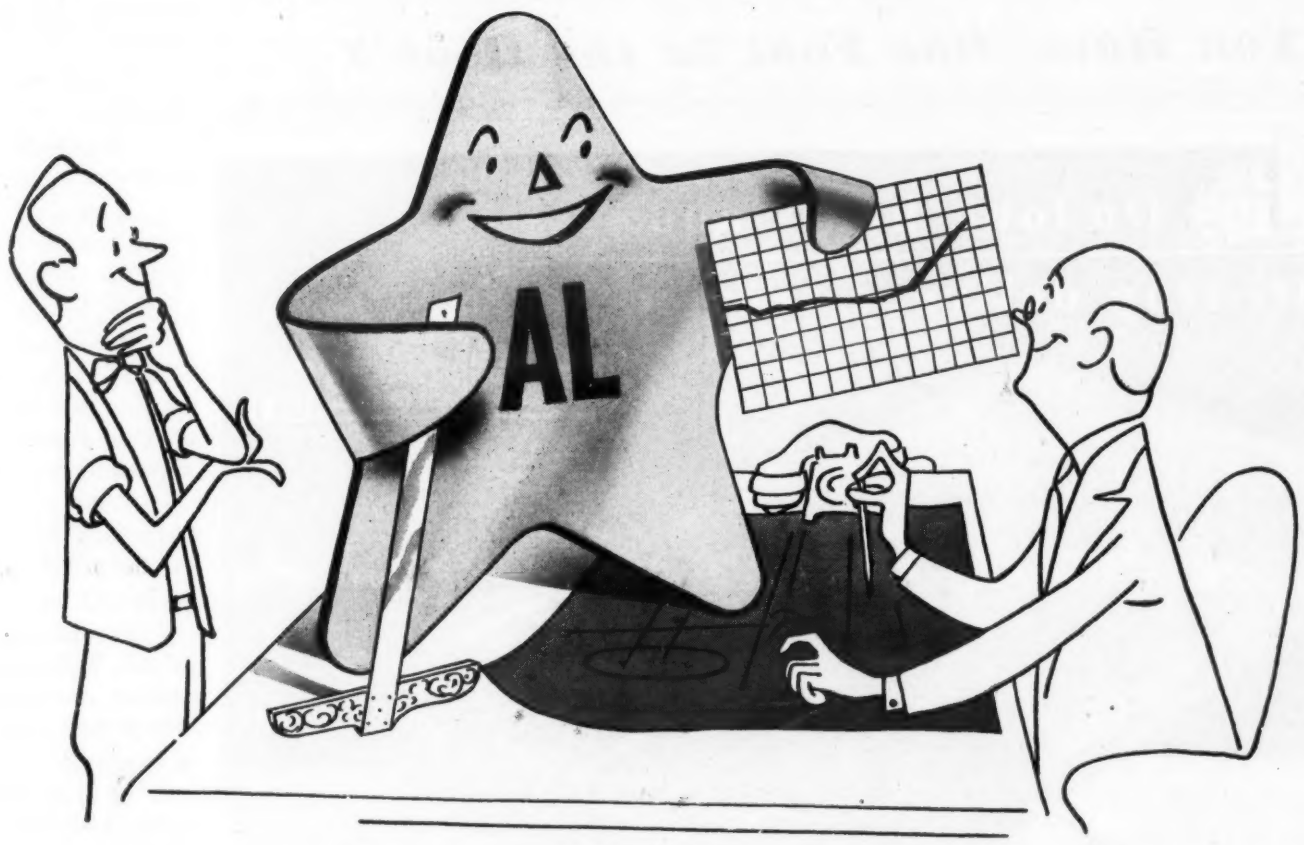
WASHINGTON, D. C. — Department store dollar sales for the week ending Jan. 22, on a national average, were 2% higher than for the corresponding week last year, the Federal Reserve Board has reported.

However, all Federal Reserve districts in the eastern half of the country reported gains, while those districts in the western half showed losses.

The Richmond district led with an 18% gain. It was followed by Boston, up 16%; Cleveland, up 10%; Atlanta, up 7%; Philadelphia, up 5%; and New York, up 1%.

Sales were down in the St. Louis and Dallas districts, 7% in San Francisco, and 8% in Kansas City. Chicago was unreported.

Sales for the full year 1948 were reported to be 5% higher than in 1947. All districts scored gains ranging from 2% in Boston and San Francisco to 9% in Dallas, the report indicated.



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Design for permanence and sell permanence
with Allegheny Metal, the pioneer stainless steel.
It's cheapest in the long run
because it lasts a lifetime . . .
it fabricates easily, and best of all,
you can get Allegheny Metal promptly.

Complete technical and fabricating data—engineering help, too—yours for the asking.

ALLEGHENY LUDLUM STEEL CORPORATION
The Nation's Leading Producer of Stainless Steel in All Forms
Pittsburgh, Penna. . . . Offices in Principal Cities
Allegheny Metal is stocked by all Jos. T. Ryerson & Son, Inc., Warehouses

They'll Do It Every Time . . . . By Jimmy Hatlo

YA-AS, POOR ROQUEFORT-- SINCE THEY MADE HIM AN EXECUTIVE AT THE PLANT, HE BRINGS HOME A BRIEF CASE FULL OF WORK EVERY NIGHT--
JIMMY HATLO 11-27
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Thanx AND A TIP OF THE HATLO HAT TO IRWIN BLOCK, 195 WASHINGTON AV., KENMORE, NEW YORK

Do You Have "One Foot In the Door"?

KOLD-HOLD TRUCK PLATES

KEEP THE SELLING FLAVOR RIGHT!

Flavor . . . rich, delicious and protected . . . is what makes customers come back for more. Whether it's meat, milk, ice cream or frozen foods overheating of perishables robs flavor and vitamins and often causes actual product loss.

Here is where Kold-Hold "Hold-Over" truck plates fit into the picture. These plates hold the truck at the desired temperature — and do it even on delivery service where the truck doors are frequently opened. What's more, the overall cost of operating with "Hold-Over" plates is lower than with dry or sweet ice — ordinarily less than 10c a day.

Kold-Hold "Hold-Over" plates provide numerous other advantages. Greater payload, because the plates take up less room. Greater safety, because the streamline design eliminates square corners — the point most liable to burst when the plates are frozen. Truck bodies that are always dry, sweet and clean. Handling costs are lowered, because partially loaded trucks need not be unloaded at night. When hooked into the central compressor, which recharges the entire fleet, they act as holding rooms. For trucks that make two day runs, a small compressor may be mounted directly on the truck and plugged in at night to any 110V outlet. Write for complete information on Kold-Hold "Hold-Over" plates for your trucks.

New Pakage Truck Unit Answers Some Hi-temperature Problems... Write for Data.

KOLD-HOLD

Jobbers in Principal Cities

PROCESSING TRANSPORTATION STORAGE

protects every step of the way

KOLD-HOLD MANUFACTURING COMPANY - 500 E. HAZEL ST., LANSING 4, MICHIGAN

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AIR CONDITIONING AND REFRIGERATION News

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Cause for Alarm

PASSAGE of the entire program suggested by President Truman in his Economic Report to the 81st Congress would be a calamity for the last stronghold of individual freedom on Earth. When you read his report carefully, you'll find that Truman proposes an unprecedented system of government powers over practically all sectors of private business.

A noteworthy item in the report is this statement, presented in support of the demand for selective price ceilings:

"Rises in the prices of essential products may be harmful to the economy even when the general price level is fairly stable."

Hence, it seems reasonably safe to conclude that inflation is no longer the excuse for government price controls; and that Truman figures such controls ought to be fastened on business even under circumstances of relative price stability.

While acknowledging that both mixed inflationary and deflationary elements exist in today's economy, the Truman report emphasizes the correction of inflationary trends only. The role of the government, in either event, should be "strengthened," according to Truman. The report says further:

"The government needs both anti-inflationary and anti-deflationary weapons so that it will be ready for either contingency. It may even be necessary to employ both types of measures concurrently in some combination."

In addition to price controls, Truman's program would grant to his Government, authority for the allocation and priority-setting of "scarce" materials. Although these powers are to be "stand-by" and selective, the President declares that, in the case of housing:

"If it proves necessary, I would not hesitate to use the allocation authority which I have requested to channel such materials into home building."

Also in the President's dominion, according to his message to Congress, would fall the limitation of wage increases "where necessary." In many cases, however, wage increases would be encouraged, he hastens to add. These latter cases would include wage increases based upon productivity (we're for that), and some current situations where non-inflationary wage increases (there's a non-sequitor for you) could be granted by employers without subsequent price increases. (Truman's bureaucrats, of course, would rule on such "situations").

Minimum wages and social security benefits ought to be raised directly and without back-talk, Truman insists.

The natural processes of collective bargaining, the Truman message reassures us, should result in sound wage adjustments without the intervention of governmental agencies. (Some analysts of the report have noted that no corresponding faith is placed in the ability of the similar collective bargaining process that goes on between buyers and sellers to result in sound price adjustments.)

Additional items over which Truman insists his Government ought to gain control would include: commodity speculation, rents, exports, and credit; along with higher taxes, public power programs, housing, federal aid to education, and compulsory health insurance.

In conclusion his ghost-written message states:

"We are committed to working out our economic problems in a way that combines economic and social progress with democratic self-responsibility."

We cannot help wondering, however, just how far the balance between government controls and "democratic self-responsibility" *can* be shifted toward the former, while still preserving the latter.

The way it seems to us, Truman's ghost writers have misinterpreted the so-called "mandate" they mistakenly believe he received from a minority of the nation's voters.

Very few Americans who cast their ballots for Truman realized that they were voting for the beginning of Socialistic-Communist-Fascist type of regime.

Guarantees

Dealers Debate Long-vs.-Short Warranty . . . Say Service Costs Are Up
Bay Area '90-Day Guarantee' Plan . . . Jobbers' Part Discussed

CHICAGO—Should guarantees on appliances limit free service to 90 days?

That question was debated by retailers participating in a panel discussion on manufacturer-distributor service to dealers, held during the recent annual meeting here of the National Appliance and Radio Dealers Association.

In addition, members of the panel asked:

That manufacturers compensate for service rendered under guarantees.

That manufacturers use a larger portion of their advertising budgets to support advertising at the point of sale.

That distributors carry sufficient stocks of replacement parts and employ adequate staffs to handle orders promptly.

That dealers have an opportunity to express their wants and needs regarding cooperative advertising.

Forming the panel were Lyle White, Van Dervoort Hardware Co., Lansing, Mich., chairman; John Gillivan, Bruener's, Oakland, Calif.; and Emerson Dole, The Appliance Center, Inc., Wichita, Kansas.

Gillivan opened his talk by considering the problem of defective merchandise.

Dealer Supplies Labor

"During the past two years," he said, "appliances have been shipped to dealers that should never have left the factory. Dealers have been so glad to get these appliances to sell that they accepted them and in turn sold them to their customers.

"In a great many instances service problems developed immediately, and the dealer had to make good on his sale. Under the terms of his franchise, the factory supplied necessary parts and the dealer supplied the labor. The labor cost was the big item and far exceeded the cost of the part.

"I am reminded of one automatic washer in which the factory substituted metal in a clutch disc. The disc was about the size of a quarter and couldn't have cost more than a nickle. My firm replaced many of these clutch discs at a total cost of $15 per machine.

Policy on Refrigerators

"Take the replacement of units on refrigerators. Most factories allow a labor claim on units that have failed after the first year and before the expiration of the fourth year. This doesn't make much sense for if a unit has defects, the majority will fail within the first year or even the first 90 days.

"Or does it make sense? It means that the dealer pays the labor cost on replacing units during the first year which covers most of the unit's failures. Draw your own conclusions.

"In requesting permission to make a claim on maufacturers for defects in merchandise, the dealer is told that due to the difficulties encountered in present day manufacture, the suppliers are trying their best to improve their products and that progress is being made. In the iterim, however, nothing can be done to compensate the dealer for his loss in service cost.

"NARDA should vigorously press recognition of the dealer's side of this problem and request the manufacturers allow the dealer to claim on him for labor costs arising from defective merchandise.

Reason for Increased Costs

"One of the largest items in the cost of doing business today is the amount of money spent by the dealer in maintaining a service department. This cost has increased in a much larger proportion than any other and even with today's increased volume the cost of service continues to rise.

"The reasons for this are apparent and I will mention a few.

"1. New appliances that come on the market are still not free from bugs—automatic washers are a good example.

"2. New appliances have many more automatic controls—bells and whistles that just love to get out of order.

"3. Much higher labor costs for servicemen.

"In view of these higher costs, what are we doing about it? Most of us are absorbing them and absorbing them in a gross margin that is the lowest in the history of our business.

"What are the factories doing about it? Most of them are blaming other factories because their products never need any service. I would like to point out that some products are better than others but none have reached the point of perfection or anyway near it.

"Manufacturers say that they can't do much about our margins nor our increased services costs, but they can . . . and that is by adopting a sensible guarantee policy.

"When you buy a new automobile what is the guarantee? It is free service for 90 days or 5,000 miles. After that, the customer pays for his service. It's simple, it's fair, and the customer accepts it.

"Why can't we in the appliance business have a 90-day guarantee on the appliances we sell? If the manufacturers want to continue replacing parts up to a year well and good, but why not limit free labor for 90 days? Serious defects will show up within the 90-day period anyhow, and after that time the dealer can make his usual service charge for labor.

The Bay Area Plan

"On the West Coast in the Bay Area we have already taken action and the major dealers in the city of Oakland have adopted this policy."

Gillivan then read the guarantee pertaining to electrical appliances as adopted by the Appliance Dealers Trade Association of Alameda and Contra Costa Counties. The guarantee is printed on the tags which are attached to appliances unless franchise restrictions prevent it.

"This appliance," the tag reads, "will be serviced free for a period of 90 days from date of delivery to the customer. After 90 days, and for an additional nine months, manufacturers' defective parts will be replaced without cost to the customer, but this firm's regular service charge will be made for installing the parts and providing service and adjustments to all types of controls."

Gillivan continued:

"This action was taken two months ago and the results have been gratifying. Our customers have not objected and I'm sure in due time it will be accepted in that area as the policy of all appliance dealers.

"I present this to you in the hope that the members of this association will consider it favorably and present it to appliance manufacturers as a major contribution in solving one of our major problems."

Wants Present Setup—With Changes

Dole, however, said he could not agree with Gillivan on shortening of the guarantee period. Explaining why he does not think this is the answer, Dole declared:

"We have built a growing business over the past 25 years on the same merchandise as a result of satisfied users. . . .

"Our problem, I believe, is as an association to sell the manufacturers and distributors on a sensible plan whereby we can make our customers satisfied users.

"We believe that we as dealers should build for the manufacturer an adequate parts and service department to satisfactorily take care of our users and that the manufacturer and distributor in turn should be sold on adequate discounts on parts and compensation to the dealer for maintaining such a service under guarantees.

"We believe that an educational program should be put on by NARDA among manufacturers and distributors pointing out to them our high cost of service for correcting their mistakes in defective merchandise.

"Every time we approach one of these subjects we get right back to our cost of doing business today as relative to our present discounts.

"We believe that a per unit fee should be included in our discounts to compensate the dealer for the service he must render the customer today under the guarantee, similar to the charge the refrigerator manufacturer makes to us to protect him in the matter of unit replacement. . . .

"I am afraid that unless the manufacturer can be made to see the light, customer service through necessity will suffer."

White said "we realize that the manufacturer and the distributor certainly have their headaches trying to get many dealers to render adequate service. This we know and are trying to correct in our retail organization. . . ."

Service to Jobbers Slow

But, he continued, "a great many manufacturers are somewhat lax in their service to the jobbers. There is a great deal of time between receiving the order from the jobber and acting on same. This is also true of some distributors as well as it is true of some dealers.

"Our own company was forced to discontinue the line of one of the largest full-line electrical manufacturers in this country, after many years of more or less satisfactory association. This manufacturer has his own factory branch distributors and in a two-year period after the war its service became so bad that we could not get even an answer back from a letter nor get any definite commitment of any part we ordered over the telephone.

"We had had this line for many years . . . and had spent literally thousands of dollars in advertising and promotion for this company. . . .

"We realize that many of our dealers do not follow the distributors' instructions on returning defective merchandise and ordering replacement parts, and that if they would do this they would be helping the factory, the distributor, and themselves immensely and would speed this condition up all along the line. . . .

Too Small Service Departments

"However, too many jobbers are trying to get by with too small an investment in their service department. They do not carry a sufficient stock of replacement parts or a sufficient staff to handle the orders promptly. . . .

"Also, the amount of breakage and damage is far greater on replacement parts than it is on original shipments of merchandise, which leads me to believe that these small replacement parts are not packed satisfactorily. . . .

"The manufacturers are sometimes to blame on this same score as we received a considerable number of crated refrigerators this year that were damaged on top. . . ."

On the subject of advertising, White charged that, "many of the smaller manufacturers and jobbers and also a few of the larger ones definitely make a practice of overloading the dealer with a lot of advertising he has no use for.

"We are highly in favor and could not exist without having advertising aid and cooperative advertising, but are of the opinion that it is abused in too many instances. We also admit that too many of the dealers do not make efficient use of advertising aids and cooperative advertising.

"It is my own personal opinion that some of the larger appliance manufacturers announce, in the national advertising, new models prematurely, hurting the dealer and themselves.

"These early releases of new merchandise cause the customer that has not purchased to wait and the fellow that has purchased a day or so before to become angry and accuse the dealer of dumping past model merchandise on him. I don't believe this is intentional on the manufacturers' part but rather is merely ill timing.

Dealer Should Have Voice

"In regard to cooperative advertising, I have felt that the dealer should have an opportunity to express his wants and needs. I believe many manufacturers set their cooperative advertising figure far too high as this is a direct charge to the dealer's cost of merchandising and in most all instances there is a time limit set by the manufacturer or distributor and the dealer does not feel like spending his portion of the money.

"This generally reverts back to the jobber's or manufacturer's treasury. . . . I know in our own particular company that $1,200 of unused cooperative advertising reverted back to the distributor. . . ."

During discussion from the floor, one dealer pointed out that he has been able to get faster service on replacement parts by making a weekly check of his parts orders.

TWIN CITY FROZEN FOODS

boosts sales WITH

PHILCO FREEZERS

"The sale of a Philco Freezer is only the beginning of new profits for all departments of our business."

OSCAR EVANS, Manager
Twin City Frozen Foods
Baltimore, Ohio

Selling Philco Freezers is a profitable business in itself, as appliance dealers everywhere know. But for locker plants, selling Philco home freezers opens the door to increased sales and profits in *all* departments of the business . . . in packaged frozen foods, in processing services . . . yes, and often in the rental of additional locker space. With this handy "out locker" in customers' homes, there is always an ample variety of frozen foods for day-to-day meal planning. More frozen foods are used; more are bought *in quantity*. Yes, the Philco Freezer is the *star salesman* of frozen foods in locker plants from coast to coast. Get the facts about this plus profit opportunity today . . . by writing Philco Corporation, Philadelphia 34, Pennsylvania.

PHILCO AH-51, 5 Cu. Ft.

Note these Easy-to-Sell Features

- Patented 3-compartment design.
- Extremely cold center compartment—as low as 15° below zero.
- Counterbalanced lid.
- Built-in lid lock.
- Temperature Control and outside Thermometer.
- Guardian Bell, battery operated.

PHILCO *Famous for Quality the World Over*

RELIANCE AMMONIA CONDENSING UNITS

Self-Contained—Sizes 1½ to 15 H.P.

Model AGF-2

Featuring:

*1. TIMKEN— *Roller bearings*
*2. PRESSURE FEED *Lubrication*
3. HIGH TORQUE— *Motors*
4. SHELL & TUBE *Cleanable Condensers*
5. LONG LIFE— *Dependability*

Model illustrated driven by 10 H.P. motor—
2 cylinder, 4½" x 4" compressor

RELIANCE ammonia compressors are combined with condensers, motors, etc., to form self-contained condensing units in 1½ to 15 H.P. sizes.

COMPRESSORS normally driven by motors over 15 H.P. available as "bare" compressors only.

Write for Catalogue, Prices & Specifications.

RELIANCE REFRIGERATING MACHINE CO., Inc.
3403 N. Kedzie Avenue Chicago 18, Ill.
*7½ H.P. & over. Export Div., 39 Broadway, N. Y. 6, N. Y.

TELLING and SELLING

A GUIDE TO SMART ADVERTISING AND MERCHANDISING PRACTICES

This series of articles comprising ideas and principles for the small retail or manufacturing business is written by James D. Woolf, who was for more than 20 years a vice president and director of J. Walter Thompson Co., one of the largest advertising agencies. Out of his experience embracing all types of advertising and merchandising he brings his counsel to the small businessman who must plan his own advertising and promotional efforts.

By James D. Woolf

A Sure-Fire Sales Booster

One of the most potent statements ever to appear in advertising copy is this: *"Your money refunded without argument if you are not fully satisfied."* But it appears rarely.

If you enjoy puzzling over mysteries, try to figure out why so few advertisers back up their claims with a guarantee. I cannot understand it. I have before me the July 10, 1948, issue of *The Saturday Evening Post*. Only one of the 113 advertisers in this issue makes any reference to a guarantee. But this one intelligent advertiser, Bell and Howell, goes all the way: *All Filmo Cameras Guaranteed for Life."*

A shopper in a strange store expresses her interest in a new product to the merchant. Wavering, hesitant, doubtful, she tells him that she "guesses she will think about it a little." The cost of living being what it is, she simply cannot afford to take chances with her money. The product is one she has never tried before, and she is in a store where she has never dealt before.

What to say to this woman is this merchant's problem. He must dispel her fears, win her confidence, and do it quickly. Like so many copywriters, he will be tempted to exaggerate, to spoon out the superlatives, in what he hopes is a high-pressure sales talk.

But with this better way he can hardly miss: "Madam, I'll be happy to have you try this product at my risk. Take it home, and use it for a

week. If you are not completely satisfied, just let me know and your money will be refunded at once."

MAIL ORDER MAGIC

The money-back guarantee, which is offered by nearly all mail order advertisers, is the magic in their copy that does more than any other one thing to win the reader's confidence.

Not long ago I sent out a test sales letter, on a $5 item, that purposely included no guarantee. I was curious to see what would happen. This mailing did just a little better than break even.

Later on, I sent out the same letter to a comparable list of names— the same letter, that is, with one exception: This time I added a strongly worded guarantee. This second letter was 40% more resultful than the first and yielded a handsome profit.

This experience is not unique, and the lesson it teaches is generally known. Why, then, do nearly all general and retail advertisers fail to make use of this sure-fire sales booster?

Only rarely does a general advertiser employ the guarantee. His product may actually be guaranteed, but if it is, he displays extraordinary timidity about mentioning it in his copy.

Years ago, the Holeproof Hosiery Co. pioneered with a spectacular guarantee—the six pairs you buy must wear six months, or you will get six pairs free. That offer made history, did more to up sales sky-high than any advertising idea tried before or since in the hosiery industry.

But advertisers generally did not follow suit, and nobody knows why. The one possible weakness in the Holeproof guarantee was that it required the purchase of six pairs.

Now there is a new offer on a single pair guaranteeing 60 days of "pure satisfaction," or a second pair free. For this campaign I predict another outstanding success.

PUBLIC PLAYS FAIR

It may be that some advertisers fear that a no-strings-attached guarantee will be abused by the public. There is little evidence the customer will cheat.

Hormel created a stir a number of years ago with a double-your-money back offer on a new soup that was being introduced. A number of other advertisers followed suit, at least one of them offering to return *triple* the purchase price to the dissatisfied customer.

YOUR BEST ADVERTISING

It is trite, has been said a thousand times—*but it is true.* Friendly word-of-mouth advertising can be your most priceless asset.

I bought a new car 18 months ago that has been wholly unsatisfactory. It has been in the shop nearly every month for repair of internal injuries, at a cost to me of over $400.

The dealer's attitude seems to be that I bought the car at my risk, and not at his or the manufacturer's. At least a dozen friends have asked me how I liked my car, and I have been compelled to admit to my displeasure.

In today's issue of my local newspaper I find advertisements by a building supply dealer, a locker operator, an office supply store, a farm implement dealer, a bakery shop, a poultry supply dealer, an air conditioning firm, a laundry, and a sporting goods dealer.

Some of the products advertised—a new roof, an air conditioning unit, or a disc harrow, for example—go into the buyer's pocketbook for several hundred dollars. Yet these advertisers make no mention of a guarantee.

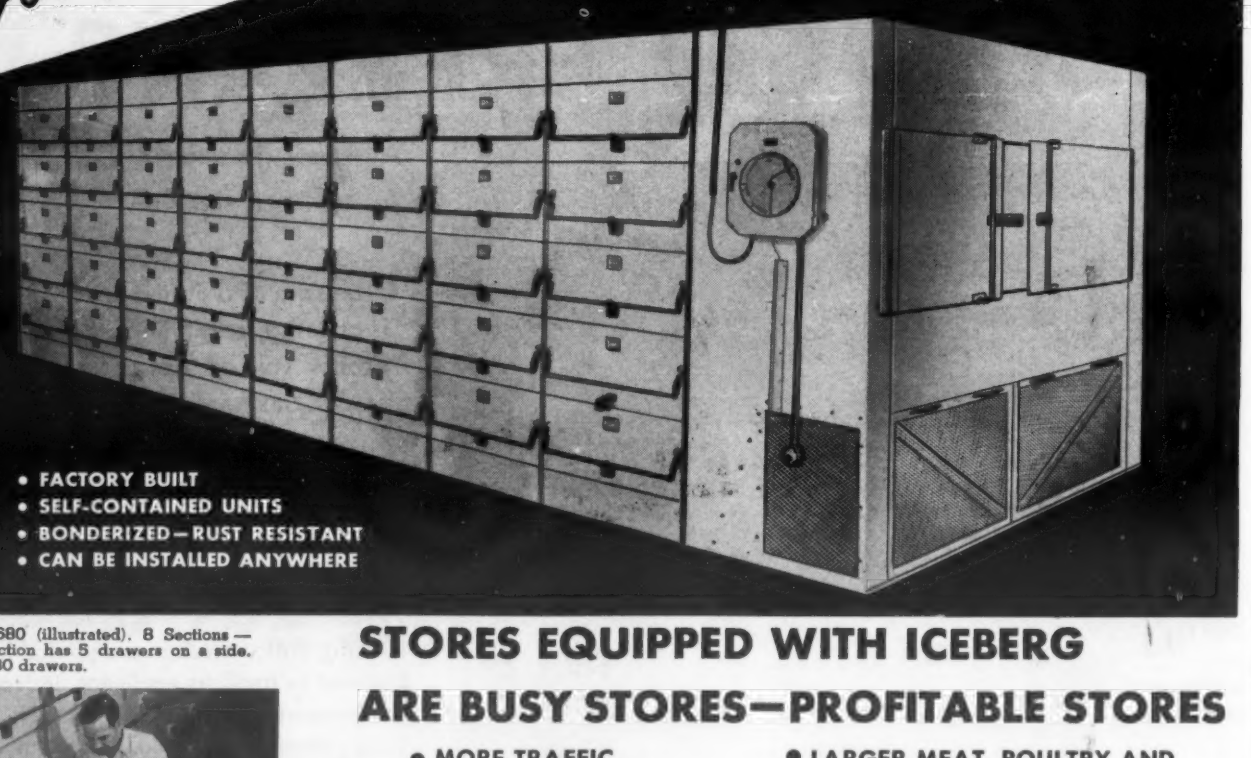
At bridge games, teas, parties, wherever women visit, they love to talk shop. These talkfests can make or break you. The first Marshall Field sensed this when he pioneered his policy that "The Customer Is Always Right."

Here is a suggestion: For one year, as a test, make *Guaranteed Customer Satisfaction* the central theme of your advertising. In every newspaper advertisement, every radio commercial, every mailing piece, every over-the-counter conversation, assure the buyer that his money will be refunded if he is not happy about his purchase. You'll find it magic.

A MODERN PORTABLE LOCKER PLANT *For Food Stores*

ICEBERG "WARM ROOM" FROZEN FOOD LOCKERS

FREEZES THE FOOD—NOT THE PEOPLE



- FACTORY BUILT
- SELF-CONTAINED UNITS
- BONDERIZED—RUST RESISTANT
- CAN BE INSTALLED ANYWHERE

Model 680 (illustrated). 8 Sections — each section has 5 drawers on a side. Total—80 drawers.

ACCESSIBILITY When open, drawers automatically seal themselves from rest of unit to prevent air leakage. Drawers roll on top-suspended roller bearings—open by finger-tip pull on bar-lock. No sticking due to freezing. Easily and completely accessible.

FOR SHARP FREEZING

Blastfreeze drawers may be installed in section next to refrigeration section.

STORES EQUIPPED WITH ICEBERG ARE BUSY STORES—PROFITABLE STORES

- MORE TRAFFIC
- QUICKER TURNOVER
- LARGER MEAT, POULTRY AND FISH SALES PER CUSTOMER
- COMPETITIVE SUPERIORITY

Iceberg introduces the modern method of locker plant operation with its portable, self-contained refrigerated lockers—composed of sections expandable up to 80 drawers, each having a capacity of 6 cubic feet.

These lockers are installed in rooms of normal temperature—without special building construction—only inside the drawers are zero temperatures maintained.

Rental revenue from Iceberg Lockers now in use throughout the United States is averaging $25.00 to $35.00 per drawer a year. These rental returns alone will pay for your Iceberg locker installation in a short time.

STORE OWNERS NOW USING ICEBERG REFRIGERATED LOCKERS REPORT 20% AND GREATER INCREASES IN VOLUME OF SALES. YOU CAN DO THE SAME—AND BETTER!

IMPORTANT! *SOME SALES TERRITORIES STILL OPEN— Write, Phone or Wire*

ICEBERG LOCKERS, INC. 175 W. JACKSON BLVD. CHICAGO 4, ILLINOIS

ICEBERG REFRIGERATED LOCKERS

This advertisement is appearing in leading national food trade magazine

Electrimatic

Valves, Driers, Strainers, Charging Lines, Quick Couplers, Forged Flare Nuts and Fittings

Ask Your Wholesaler

Electrimatic

2100 Indiana Ave. • Chicago 16, Illinois
Canada—2025 Addington Ave., Montreal

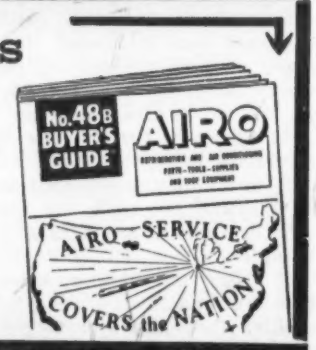
REFRIGERATION AND AIR CONDITIONING
UNITS • PARTS • TOOLS • SUPPLIES

NEW Latest Prices Wanted Lines

Write Today for Your Copy

Why spend valuable business hours and car expense on trips to buy parts? Get fast low-cost delivery from our large, complete stocks. Airo serves buyers in 48 States and overseas.

Wholesale Only
Please Write on Your Letterhead



AIRO SUPPLY CO.
2732 N. ASHLAND AVENUE • CHICAGO 14, ILL.

Nichols Directs Sales Of Frigidaire Parts

DAYTON, Ohio—Murray E. Nichols has been appointed sales manager for all Frigidaire parts and accessories, according to E. E. Landis, service manager, Frigidaire Div., General Motors Corp.

M. E. Nichols

"Nichols' appointment reflects the increasing importance of service parts and accessories sales in the Frigidaire business," Landis stated. "He joins us with an excellent background in the parts business gained during 10 years with United Motors Service Div. of General Motors, in which he was, successively, a salesman, assistant branch manager, and branch manager."

Delavan Enlarges as Parts Sales Increase

DES MOINES, Iowa—Completion of an addition to the Delavan Mfg. Co., plant here has been announced by W. E. Safris, general manager.

Construction of the addition was made necessary by the rapid expansion of the company's line of compressor replacement parts, Safris said.

The new building, covering 6,500 sq. ft. will also make room for an enlarged testing laboratory and will be used for the production of jet aircraft nozzles.

Pettus Co. Organized

MOBILE, Ala.— Articles of incorporation were filed with Mobile Probate Court recently for the Pettus Refrigeration Co., located at 53 N. Washington Ave. Authorized capital stock was listed at $100,000, with the following listed as officers: Charles R. Pettus, president; Elby Allman, vice president; and Marion G. Kearley, secretary-treasurer.

Wabash Mfg. Co. Gets Larger Plant, Adds Cylinder Division

CHICAGO—Wabash Mfg. Co. here has announced that it has recently moved into a new plant that doubles its floor space and greatly enlarges its productive capacity.

The new plant is located at 2300-18 S. Western Ave., Chicago 8.

Wabash also announced that it had recently purchased the cylinder spinning plant of Valley Metalsmiths Co. at Dundee, Ill. and is operating it as the Dundee Div.

"Refrigerant cylinders manufactured at the Dundee plant will be distributed under the Wabash tradename through regular Wabash wholesalers," Marty Cahenzli, Jr., vice president, declared.

Cahenzli also pointed out that the company is currently sending to its wholesalers a new 1949 catalog that presents for the first time many new items which have been added to the Wabash line.

Redwood Heads Sales For R. D. Marshall Co.

ALBANY, N. Y.—Thomas R. Redwood has been appointed sales manager of R. D. Marshall & Co., Inc., refrigeration supply wholesaler here, the company has announced.

T. R. Redwood

A native of upstate New York and a graduate of the University of Pennsylvania, Redwood was formerly assistant manager of the Wheeling, W. Va., branch of the Air Reduction Co.

During the war, he served with the vocational division of the University of the State of New York. Previous to his affiliation with R. D. Marshall & Co., Inc., Redwood was district field engineer for the Dayton Rubber Co.

Laundergan In Freezer Post at Coolerator

DULUTH, Minn.—The appointment of J. J. (Jim) Laundergan as Coolerator national freezer specialist was announced recently by William C. Conley, Jr., sales manager of The Coolerator Co.

J. J. Laundergan

A former Coolerator district sales manager, Laundergan will assist in the overall freezer promotion and sales program throughout the nation. His other responsibilities will include supervision of freezer sales to large commercial users and development of a national program of key dealer freezer demonstrations.

Joining Coolerator in 1933, Laundergan was appointed district sales manager for the mountain states region.

Prior to his appointment as national freezer specialist, Laundergan was district manager for the Pittsburgh area and more recently for the Cincinnati territory.

He will have his headquarters in Duluth.

Gardner Forms Service Firm

BUFFALO—A business name has been filed in the Erie County clerk's office for Gardner's Refrigerator Service, to be located at 29 South Gate. Benjamin H. Gardner will operate the new firm.

'Encyclopedia' Issued On Capacitor Replacement

SOUTH PLAINFIELD, N. J.—Cornell-Dubilier Electric Corp., is now making available its new 56-page encyclopedia, No. 163, which it claims is the largest encyclopedia for capacitors used in capacitor type motors ever issued.

The encyclopedia provides interchangeability tables with constant selector indices, and also includes "replacement" tables listing the proper C-D Type for replacing units made by other companies, according to the company.

Eight sections cover: Motor Part Numbers (alphabetical listing); Motor Part Numbers (numerical listing); Cross Index of C-D Replacements (numerical listing); Replacements; Technical Information; C-D Catalog Listing; Interference Filters; Service Mikes.

Requests for free copies of Cornell-Dubilier's new Encyclopedia No. 163 should be addressed to: Jobber Division, Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Rewa Regional Meeting In Tulsa Feb. 25

TULSA, Okla. — Members of the Refrigeration Equipment Wholesalers Association Region No. 7 will hold a closed meeting at the Mayo hotel here on Feb. 25, Joseph W. Cavataio, acting chairman of the regional organization, has announced.

Manufacturers' representatives are welcome to attend, he further stated.

Refrigeration Courses Described In Booklet

CHICAGO — Utilities Engineering Institute of Chicago has published a new, illustrated 72-page catalog which includes full descriptive information concerning all U.E.I. courses of training.

This pioneer refrigeration school has recently enlarged its resident training facilities and now offers several new courses to men in the refrigeration and air conditioning fields.

A combined air conditioning and refrigeration course is offered in the resident day school, which includes an intensive training program over a period of 34 weeks. For men with previous refrigeration experience or training, the school has now made available training in air conditioning as a separate field.

Additionally, a two-year associate engineering course in combined air conditioning and refrigeration has been established for men who wish to take advanced work.

Now open for registration, a drafting course offers specialized training in architectural drafting, machine and sheet metal drafting.

All U.E.I. resident courses are available to veterans under G.I. Bill of Rights. Non-veterans or veterans who have already used their G.I. privileges may qualify for either resident or home-study training upon application.

For copies of the new catalog containing full information concerning refrigeration and air conditioning training, write Utilities Engineering Institute, Department G.B. 1, 2525 N. Sheffield Ave., Chicago.

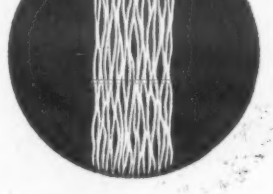
PAGE after PAGE tells this story

Want to save time, trouble, and profit-eating call-backs on your refrigeration control replacements? Then make the Cutler-Hammer refrigeration control catalog your standard guide on replacements. Here you will find "specific-fit" units which are not merely listed but already manufactured by Cutler-Hammer for more than 1,000 individual refrigerator models which the industry has produced since 1925. No "modifying", no fussing, no compromises, when you put in C-H "specific-fit" replacement control units. And you'll also quickly see how the widely-known Cutler-Hammer name (advertised in The Saturday Evening Post, Time, Newsweek, American Home, Better Homes & Gardens, House & Garden, etc.) builds customer confidence and good will. The C-H refrigeration control catalog, as well as the items you need, are available through your authorized C-H refrigeration wholesaler. Do not forget, this C-H refrigeration control line includes the outstanding *general purpose* replacement control (9521N9) for use with motors having "built-in" overload protection. CUTLER-HAMMER, Inc., 1362 St. Paul Avenue, Milwaukee 1, Wisconsin.

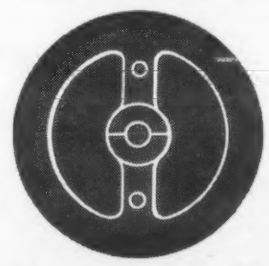
You *know* you're right when you use C-H "specific-fit" controls

9521N43 C-H "specific-fit" for Briggs 1938 models
9521N85 C-H "specific-fit" for Philco 1940 models
9502N376 C-H "specific-fit" for Mayflower and Tropar 1933-34-35-36 models
9521N56 C-H "specific-fit" for Gale 1941 models
CUTLER-HAMMER
MOTOR CONTROL
C-H
9502N95 C-H "specific-fit" for Moffat 1936-37 models

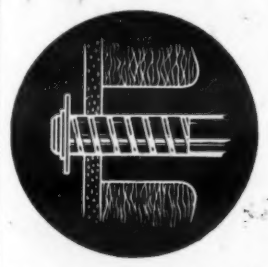
Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast.



Special inorganic fiber packing . . . high in oil-holding capacity!

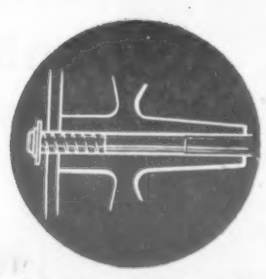


Extra large oil reservoir . . . isolated from heat, permanently sealed!



Forced recirculation of lubricant . . . for long, service-free operation!

NEW Redmond SINGLE BEARING, SHADED POLE MONOMOTORS



Precision finished single bearing . . . extra long for true shaft alignment and free running rotor!

Here are the features you want . . . the features you need in single bearing fractional horsepower electric motors. Brought to you now in the new Redmond MonoMotor . . . 4-pole shaded pole, up to 9 watts output. Designed and built to give you outstanding performance over years of smooth, quiet, service-free operation. Look! ☆ Extra large oil reservoir . . . isolated from heat and permanently sealed. ☆ Special inorganic fiber packing . . . dependable oil release, improved lubricating action. ☆ Forced feed lubrication of bearing surfaces by means of spiral pump on shaft. ☆ Extra long, precision finished single bearing for accurate sustained rotor alignment. Then add varnish sealed windings for humidity resistance and cooler operation, die cast aluminum rotor, and a rugged cast iron case. There you have a perfect little low-range power unit designed to out-last your longest expectations. Mounting brackets available, too, for simplified installation. Write today for details.

Redmond COMPANY, INC.
OWOSSO, MICHIGAN

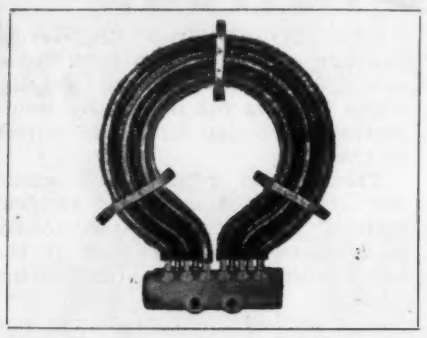
REDMOND ®

OFFICES IN NEW YORK, CHICAGO, DAYTON, LOS ANGELES, DALLAS

Key to your low-range power requirements.

EXPANDED FACILITIES ☆ PROMPT DELIVERIES ☆ SERVICE BEFORE AND BEYOND THE SALE

ROME-CONDENSER
★ Jointless Type ★



Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

ROME-TURNEY
RADIATOR COMPANY
222 CANAL ST.
ROME, N. Y.

Kelvinator
made by EBCO MANUFACTURING CO. COLUMBUS, OHIO USA

Cooling Cure for Thirsty Throngs

Sell the name that sells itself . . . with Kelvinator-refrigerated Electric Water Coolers. Sizes and models for every requirement. Write.

The EBCO Mfg. Co.
TOWN and LUCAS STS.
Columbus 8 Ohio

CORRECTION

In the Feb. 7 instalment of Key to Air Conditioning the wrong diagram was inserted. The correct Fig. 30 and cutline appears below.

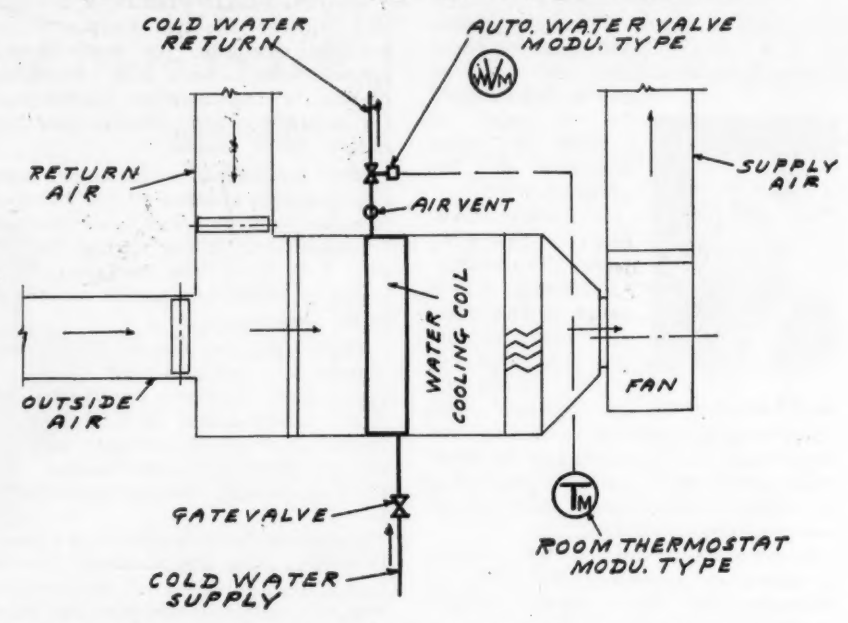


Fig. 30—Where a cold water coil instead of a direct expansion system is employed for cooling, this control system is the simplest that can be used. It includes a modulating room thermostat and an automatic modulating water valve in the return line.

Sparks Heads Floyd & Co. Air Conditioning Div.

CINCINNATI—Harold C. Sparks, formerly in charge of engineering layout for the Heating Engineering & Sales Co. of Indianapolis, has been appointed manager of the heating and air conditioning division of Floyd & Co., Inc., here. He joined the Floyd organization last March.

Other promotions announced by president Morris Floyd are: A. C. Elliott, from vice president to executive president; Arno C. McGowan, sales manager to vice president in charge of sales; and Vern Fox, service manager to general manager of service operations. Rudy Clemen has been named assistant manager of service operations.

The **KEY** *to* **AIR CONDITIONING**

One of a series from

by James J. LaSalvia

If readers have any questions or problems concerning the application of air conditioning, they are invited to write to Mr. LaSalvia, who will be pleased to furnish a complete answer. There is no charge.

Automatic Controls (Cont.)

Fig. 36 shows a simple control to use when cold water is used in pre-cooling coils ahead of direct expansion coils.

In this set-up it is best to use a two-step room thermostat (T_2), the settings to be placed 2° F. apart. The lower setting operates the water coil, and the higher setting operates the direct expansion coil.

Assuming that the settings are 78° F. and 80° F., respectively, if the temperature in the room is below 78° F., both water and direct expansion coils are out of operation.

When room temperature rises just above the lower setting of 78° F., the lower setting of the two-step thermostat (T_2) opens the automatic two-position water valve ($_wV_2$) in the water line, and places the water coils into operation.

If the room temperature keeps on rising and goes just beyond the high setting of 80° F., the high setting of the room thermostat (T_2) opens the refrigerant solenoid valve (S) on the refrigerant line and starts the compressor.

The system will operate in this manner until the room temperature drops just below 80° F., when the refrigerant solenoid valve (S) closes, and stops the compressor. If the room temperature keeps on dropping and drops just below 78° F., the automatic water valve ($_wV_2$) will be closed.

Fig. 37 shows a set-up of more than three coils of pre-cooling water coils and direct expansion coils. Any number of coils may be used, but in this case four of each kind are shown.

A modulating type room thermostat (T_m) actuates a step controller. The step controller has in this case eight cams on the shaft, one for each coil.

Assume that the room thermostat is set at 80° F., the system has just been started for daily operation, and the room temperature is already above 80° F.

The room thermostat (T_m) will actuate the step controller, and the operation of the step controller will open the four automatic water valves ($_wV_2$) in sequence and then will open the four refrigerant solenoid valves (S), also in sequence, until all coils are in operation. All coils will stay in operation as long as the temperature in the room stays above 80° F.

When the room temperature drops just below 80° F., the room thermostat will actuate the step controller to close one solenoid valve on the refrigerant coils, taking that coil from operation. If temperature in the room remains at 80° F. no other coil will be cut out. But if the room temperature keeps on dropping, additional solenoid valves will be closed and will prevent refrigerant coils from operating.

If the room temperature keeps on dropping and all the solenoid valves have been closed, then the step controller starts to close the automatic water valves in the same manner as the solenoids, until all the water coils are out of operation. This means that the refrigerant load in the room is negligible so that no cooling is required.

Conversely, when the room temperature starts to rise from this position, the water coils are placed into operation in sequence until room temperature is satisfied. But if the room temperature keeps on rising over the setting of the room thermostat, more water coils will be placed into operation, and if this does not check the rise of the room temperature, the solenoid valves for the direct expansion coils will be opened in sequence until room temperature is held at room thermostat setting.

(To Be Continued)

How Pre-Cooling Water Coils Are Controlled

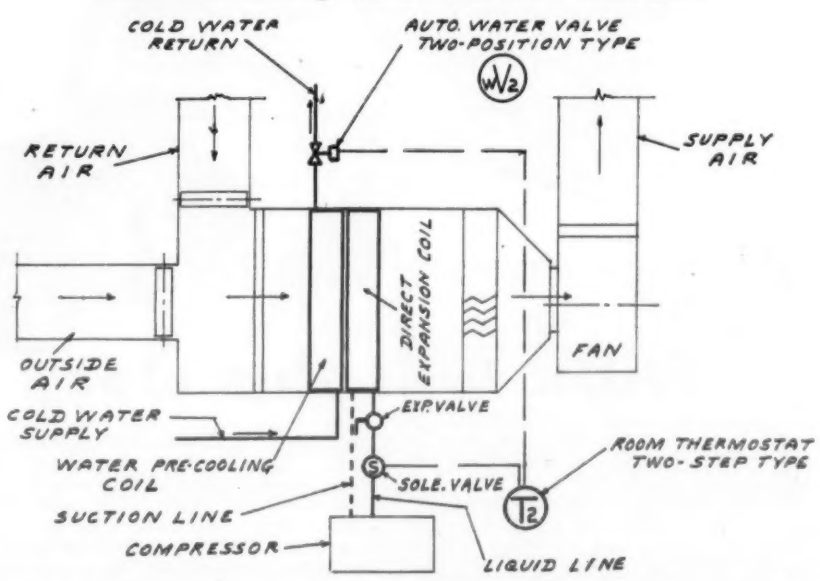


Fig. 36—When a cold water pre-cooling coil is used ahead of a direct-expansion coil, it is best to employ a two-step thermostat as indicated here.

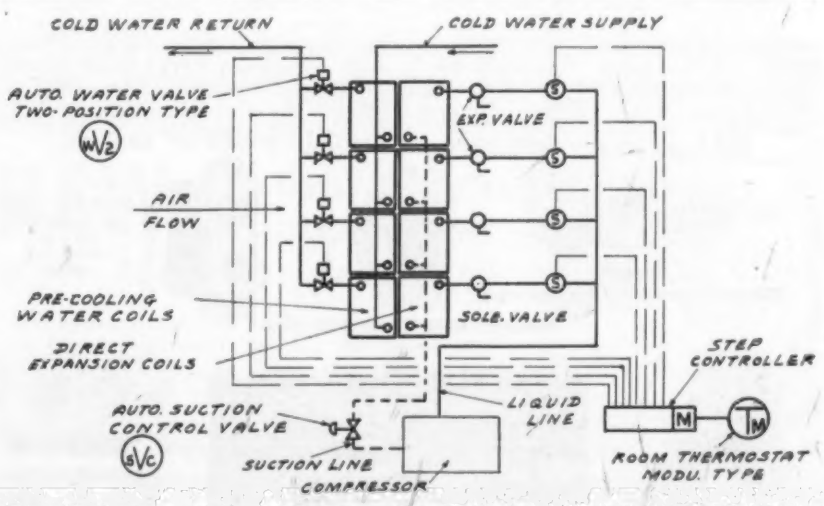


Fig. 37 shows a system with four cold water pre-cooling coils ahead of four direct-expansion coils, all eight coils being controlled by a modulating room thermostat through a step-controller with eight cams.

SAVED... A MILLION GALLONS of WATER A DAY*...

...with MARLO COOLING TOWERS

*Total for these Marlo installations shown here

– Conserves up to 95% of normal water demand

Because of their efficient design, Marlo Cooling Towers utilize water as the precious, costly commodity that it is . . . And, in large or modest installations, the other Marlo quality features are important too. Sump tank, frame, eliminators, wheels and scrolls are hot-dip galvanized; scroll and panels are mastic-coated for double protection . . . Bronze inspection-panel hardware for unfailing accessibility. Marlo evaporative condensers are available in 3 to 100-ton capacities that provide combinations for infinite requirements.

MARLO-HEAT TRANSFER Since 1925

Cooling Tower Bulletin sent upon request.

Marlo COIL CO. • 6135 Manchester Rd. • St. Louis 10, Mo.

A New Ice Cube Maker In Production

Distributors and sales representatives attending Jordon Refrigerator Co. sales conference watch a welding operation on the new model 71M ice cube maker, new model in Jordon line now in volume production.

* * *

Jordon Reveals Plant Expansion Program, New Models, At Factory Sales Conference

PHILADELPHIA—Sales representatives of Jordon Refrigerator Co. attending the recent two-day factory sales convention here witnessed the unveiling of several new models, heard talks by Jordon executives on company programs and policies, and were taken on a plant tour.

Executives who addressed the meeting included Frank Fogel, president; Harry Fogel, vice president and treasurer; Robert J. Duffy, national sales manager; Sidney Kleiman, chief design engineer; and Alfred Levin, advertising manager.

Frank Fogel outlined Jordon's $250,000 factory expansion program; Kleiman discussed the firm's "functional design" program and conducted the plant tour; Duffy keynoted the sales sessions and introduced the new models; Harry Fogel considered pricing and financing policies; and Levin revealed details of an increased advertising campaign.

THE NEW JORDON MODELS

Among new models shown to the representatives was an open-top, self-service ice cream merchandising cabinet and a 9-cu. ft. frozen food display case with sliding Thermopane doors. Other models on display for the first time were a full-vision display case with adjustable shelves and improved fluorescent lighting; glass-door, stainless steel reach-ins; self-contained and remote stainless steel beverage coolers; and the full line of reach-ins from 23 to 60-cu. ft. capacity.

Also given their initial showing were these additional models for a specialized domestic market: a 9-cu. ft. home and farm freezer with self-balancing lid and "freezewall" construction and a 15-cu. ft. single-temperature refrigerator designed for larger homes, estates, boarding houses, and clubs.

Sales representatives were told that a complete new line of open-type refrigerated display cases are in the design stage and will be ready for distribution before this summer. The line will include three-decked dairy cases, meat and vegetable cases, and a self-service frozen food cabinet.

Known as Model D9, the new ice cream merchandiser is said to be more easily accessible because of the larger top opening. The cabinet's superstructure, which has been redesigned, comes with full-color, three-dimensional photographs and fluorescent formed plastic letters spelling out "Ice Cream" or "Frozen Foods," or simulating any trade name or trade-mark.

The cabinet is supported on ball-bearing casters so that it can be moved about at will. Capacity of the merchandiser is 360 pint packages.

'FUNCTIONAL DESIGN' EXPLAINED

In reviewing Jordon's factory expansion program, Frank Fogel listed the new equipment that has been installed, such as "completely modernized" Bonderizing, paint spraying, and paint baking equipment, electrical and gas welding equipment, and conveyer systems.

Fogel also announced that the new 50,000-sq. ft. factory wing has been completed and will be ready for full use before spring.

Kleiman stressed that the company's "functional design" program has resulted in better styling and construction at lower costs through elimination of "unessential frills." "Great advances" in design have been made possible, he said, by establishment of a special experimental construction department and the company's own tool and die shop.

While discussing the sales potential of the Jordon line, Duffy said 1949 should be a banner year for sales of all types of frozen food equipment. He outlined the results of an experimental sales program that emphasizes the importance of the frozen food distributor in selling this equipment.

Great opportunity exists, he declared, for the refrigeration dealer to work with frozen food distributors in following up leads. By so doing, Duffy pointed out, half of the dealer's job is done for him in advance.

During his talk on pricing and financing policies, Harry Fogel told the meeting:

"Despite our conviction that the honeymoon is over, we seem to have forgotten that we live in a dynamic and highly competitive world—and that while business may be leveling off and going back to what we call normal, it is in this atmosphere that business has by and large thrived for many decades."

Jordon's expanded advertising program will begin with regularly-scheduled, full-page advertisements in trade journals and will be followed by full-page advertising in consumer publications, it was reported by Levin. New descriptive literature and folders will be made available at an early date, and a cooperative advertising program has been outlined, he noted.

It was announced that distributors will hold a series of regional exhibits of Jordon equipment on dates to be set soon.

Main office personnel attending the convention included, in addition to those mentioned: Lyndall N. Hopper, assistant sales manager; John R. Rasmussen, chief engineer; Ben Markowitz, factory superintendent; Joseph Smith and James Hayes, purchasing agents; and John Steveline, credit manager.

Members of the field force in attendance included Thomas and Harold Binder, Newark, N. J.; James A. Bertha, Houston, Texas; Tibor Weiss, East St. Louis; Lewis Girion, Los Angeles; Joseph H. Wiley, Chicago; Frank P. Murphy, Grand Rapids, Mich.; William J. Wawrzonek, Milwaukee; Samuel J. Michael, Richmond, Va.; Samuel Chernoff, Miami, Fla.; Harry Hanover, Philadelphia; Theodore I. Gruber, New York City; Carl and William Connors, Denver; Donald V. Manning, Memphis, Tenn.; and J. M. Roy, Jr., New Orleans.

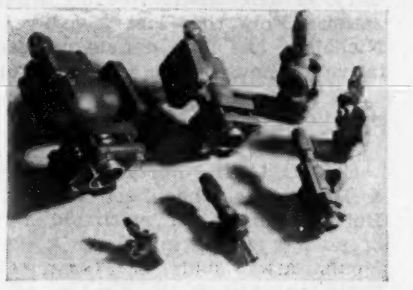
New Equipment To Speed Production

Sidney Kleiman, chief design engineer, points to a portion of the new paint spraying room currently being installed at the Jordon plant. New painting equipment and an automatic conveyer system will more than double the paint spraying capacity.

THE NEW STANDARD OF THE INDUSTRY

METREX COMPRESSOR SERVICE VALVES

METREX Model M-Series 1000



Back seating flanged angle type. **Mfrd. of non-porous, permmold, nickle iron castings, forged steel flanges, brass sweat bushings.** Pressure tested at 300# PSI for tight seating. Complete line. 38 sizes—⅜" SAE to 5⅛" ODS.

For full details write

METREX VALVE COMPANY
9904 Franklin Ave.
Franklin Park, Ill.

METREX VALVES

WATER REGULATORS • COMPRESSOR SERVICE VALVES • EXPANSION VALVES
WATER COOLED CONDENSERS AND BOOSTERS • ACCUMULATORS
DEHYDRATORS • MULTI-STRAINERS • LINE VALVES • ACCESSORIES
SPECIAL DESIGN PRODUCTS FOR THE REFRIGERATION INDUSTRY

Maximum EFFICIENCY - Minimum ATTENTION

Precision manufacture gives Larkin refrigeration products life-time-top performance and lasting fortitude. Made by the originators of the patented Cross Fin Coil, Larkin is the recognized leader in precision manufacture of Larkin Humi-Temp Forced Convection Units — Bare Tube and Zinc Fused Steel Plate Coils — Air Conditioning Units — Instantaneous Water Coolers — Evaporative Condensers — and all other equipment factors used in dependable commercial and industrial refrigeration.

THE WATCH DOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS 519 MEMORIAL DRIVE • S•E• ATLANTA • GEORGIA

FIREPROOF INSULATION

AT NO EXTRA COST WITH ZEROCEL

- Efficient, "K" factor of 0.24 BTU at 60°F.
- Fireproof
- Will not absorb moisture
- Odorless
- Will not settle
- Immune to fungus, rot and decay
- Easy to cut with a knife

GOLD BOND ZEROCEL INSULATION

AVOID fire hazards and protect your investment too. Build your plant of fireproof materials—*including insulation!* Gold Bond Zerocel Insulation is as fireproof as the mineral from which it's made. It simply can't burn! And it has all the other qualities you need and expect in top grade insulation.

Leading owners and builders throughout the Refrigeration Industry specify Zerocel for three important reasons: perfect insulation performance, fire protection, and economy. A special booklet with detailed drawings showing the best method of installing Zerocel will gladly be sent upon request.

SEND FOR FREE BOOKLET TODAY

National Gypsum Company, Dept. A-92, Buffalo 2, N. Y.

Gentlemen: Please send me a FREE copy of the new Gold Bond Zerocel Booklet, "Fireproof Refrigeration Construction."

Name .....

Company .....

Street .....

City ..... State .....

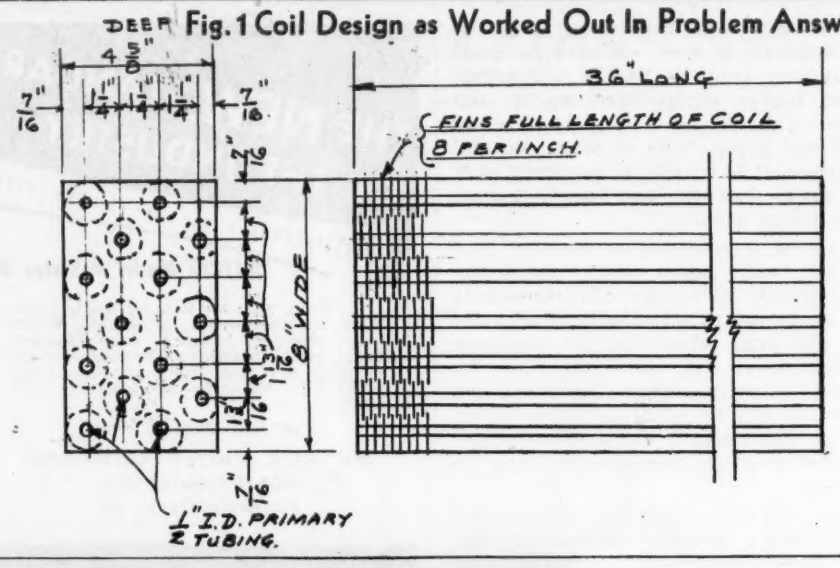
Nicholson Will Manage A.R.H. In Rochester

ROCHESTER, N. Y.—R. J. Nicholson has been appointed general manager of A. R. H. Inc., local Chrysler Airtemp distributing organization. For the last five years, Nicholson has been a field representative in Pennsylvania and New York.

Portable Cooler Co. Formed

CHICO, Calif.—Portable Air Cooler & Heater, Inc. has been formed in Butte County, Calif., with 100 shares of no par value capital stock. Principals are: John E. Long, Carl Thomsen, and F. R. Crable, all of Chico, Calif.

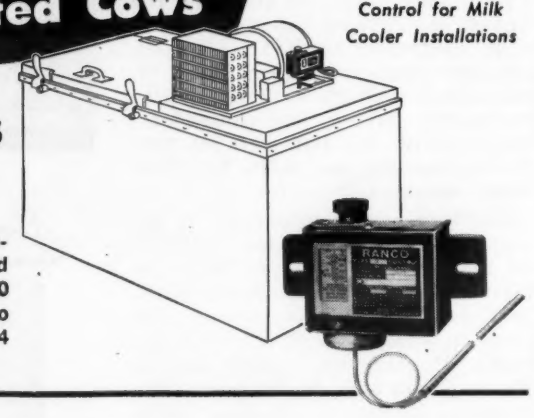
Fig. 1 Coil Design as Worked Out In Problem Answer



More Important Than Contented Cows

Ranco CONTROLS FOR MILK COOLERS

Ranco Type O-1414 Control for Milk Cooler Installations



LIKE all the more than 20,000,000 Ranco Refrigeration Controls now in use Ranco's three type O models designed specifically for milk cooler installations are products of 20 years of refrigeration engineering experience. Ask your Ranco wholesaler to show you Ranco's type O-1414, O-1477 and O-1514 controls for milk coolers.

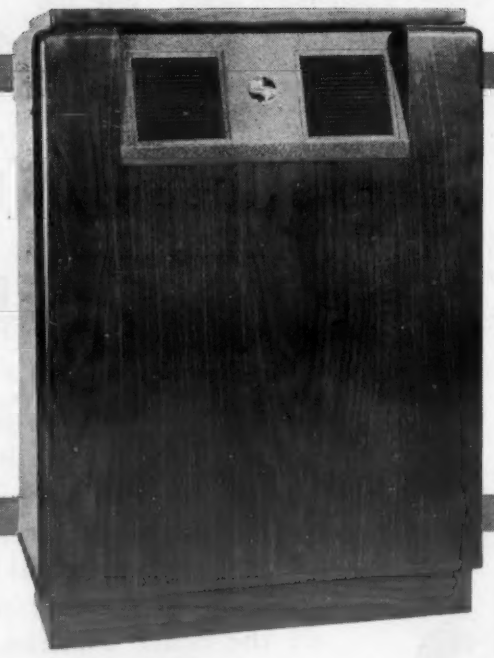
Ranco Inc. COLUMBUS 1, OHIO — World's Largest Manufacturers of REFRIGERATION CONTROLS

THE SENSATION OF THE NATION

Refrigerated AIR CONDITIONING

Installed WITHOUT "Wrecking the Place"

YOUR Territory May Still Be Open! Write Now!



Special PRICES

Distributor franchise available upon signed contract of 25 units or more

SPECIFICATIONS Spelling S-A-L-E-S!

★ COMPACT, 27" High, 22" wide, 10" deep ★ CAPACITY, 2 rotary blowers, 12,000 BTU per Hour ★ REFRIGERATED with Freon ★ FILTERS and Dehumidifies ★ ENGINEERED to "Nth" degree, all Aluminum Case and all Copper Coils. ★ SMART Walnut or Blond Mahogany finish. ★ MODERN CONTROLS Expansion Valve, Solenoid and Theromostat for *TRIPLE* Control ★ ADAPTABILITY, Compressor to Unit copper tubing is easy to install, easy to move. Apt's. or Hotels can offer CHOICE of Air-conditioning, Lessees can install and move units without losing equity.

INTERNATIONAL —Has a lower initial cost and *installs for 25% to 40% less.* No expensive alterations of walls or masonry, operates anywhere in the room. INTERNATIONAL Cools and dehumidifies from any location in a *home, tourist court, office, hospital, hotel.* The compressor, (extra) can be placed in basement, attic or closet, connect with flexible, inexpensive copper tubing. Increasing Compressor capacity makes large commerical sales easy! ALL the advantages of a single unit system *without* blocking windows, winter removal or compressor noise and heat. Fully Automatic, triple theromostatic control, INTERNATIONAL is THE Profit line for '49—No "wrecking" installations, inexpensive, effective, flexible, modern, smart! This same system, using chilled and hot water instead of Freon, will provide year round temperature control. Order *now*—WRITE . . .

WRITE TODAY *for Full Information*

Cable Address - **"INTIME"**

Manufacturers of All Copper Refrigerant Coils from 1 to 20 tons which, when installed in existing ductwork of any central heating system, will provide refrigerated air conditioning.

Air INTERNATIONAL CONDITIONING

Mfrs: International Manufacturing Co.

515 W. Main St. Oklahoma City 1, Okla.

Plant: 4028 N. Barnes

Question: How Does One Calculate the Coil Size In Air Conditioning Jobs?

Oklahoma City, Okla.

Dear Mr. LaSalvia:

I have followed your articles in the AIR CONDITIONING & REFRIGERATION NEWS with great interest, and want to take this opportunity to congratulate you on your presentation of the various applications of air conditioning.

My main purpose in writing this is to ask your advice about a problem. A problem concerning coil sizes. Take, for example, a typical air conditioning job, with a 3-ton heat load. How would one calculate the square foot area of the primary and secondary surfaces, the number of tubes in the face, and the number of rows deep to maintain a comfortable humidity? I refer not only to refrigerant coils, but to coils using hot and cold water.

JOHN W. SCHULTZ

Answer: LaSalvia Lists Considerations In Special Coil Design, with Sizing Formula

In regards to your problem concerning coil sizes, we in the application end of this business should use at all times standard coils as made by various manufacturers, otherwise the cost of such coils if made to our design in every case would be prohibitive. To select refrigerant, hot and cold water, and heating coils, this has been explained fully in my article in the NEWS starting Sept. 6, 1948, and running continuously every week up to and including the Nov. 29 issue.

However, sometimes we are called upon to design coils for a special job and it is important that we know how to design them. In general the same procedure is followed, except that the design is varied among manufacturers and therefore different variables are used in arriving at the same amount of work to be accomplished.

The chief objective in any coil is to arrive at the proper amount of primary and secondary surfaces in accordance to its design. In order to design a coil of any nature whether refrigerant, hot and cold water, and steam coils, the following information is necessary.

1. B.t.u. per hour of sensible heat.
2. B.t.u. per hour of latent heat.
3. C.f.m. through the coil.
4. Material of primary and secondary surfaces.
5. Temperature of medium inside of primary surface.
6. "K" factor, B.t.u. per sq. ft./per deg. M.E.D./per row per hour (sensible heat).
7. Velocity of medium inside of primary surface in feet per second.
8. Temperature of air entering coil.
9. Temperature of air leaving coil.
10. Velocity of air through coil in feet per minute.

After the primary surface has been calculated, this surface is ratioed between primary and secondary surfaces. The secondary surface is usually rated at 10 to 15 parts to one part of primary surface, depending upon the design of the coil. No two coils in the industry have the same ratio of primary and secondary surfaces.

For instance let us take your problem of a 3-ton heat gain load or 36,000 B.t.u. per hour, of which 80% is sensible heat or 28,800 B.t.u. and 20% is latent heat or 7,200 B.t.u.

Let us make the following assumptions:

1. 28,800 B.t.u. per hour sensible heat.
2. 7,200 B.t.u. per hour latent heat.
3. 1,000 C.f.m.
4. Using copper for primary and secondary surfaces.
4. "K" = 130 (for air velocity of 500 f.p.m. and medium velocity of one foot per second in primary surface.
6. Temperature of refrigerant in primary surface as 40° suction temperature.
7. Velocity of refrigerant in primary surface one foot per second.
8. Temperature of air entering coil, 83° F.
9. Temperature of air leaving coil, 60° F.
10. Velocity of air through coil, 500 f.p.m.

1. Calculate the face area of coil.

$$\frac{\text{1,000 c.f.m.}}{\text{500 f.p.m.}} = \text{2 sq. ft.}$$

2. Calculate the mean effective temperature difference (M.E.D.).

Air in	83°
Refrigerant temp.	40°
	43°
	d_1
Air out	60°
Refrigerant temp.	40°
	20°
	d_2

By applying d_1 and d_2 to the M.E.D. chart the M.E.D. is 30.

3. Calculate the latent heat factor.

$$\frac{\text{28,800 B.t.u.}}{\text{36,000 B.t.u.}} = .8 \text{ ratio}$$

For an .8 ratio for refrigerant flowing at 1 ft. per second the latent heat factor is .9.

4. Calculate the rows deep required (based on sensible heat).

$$\text{M.E.D.} \times \text{face area} \times K \times \text{latent factor} = \text{rows deep.}$$

$$\frac{\text{28,000 B.t.u.}}{30 \times 2 \times 130 \times .9} = 4 \text{ rows deep.}$$

5. Calculate the primary surface.

The formula for calculating the primary surface is:

B.t.u. per hour = k x A x M.E.D. (sensible heat)

Where,

B.t.u. per hour = 28,800.

K = 130 B.t.u.

A = Area of primary surface in sq. ft.

M.E.D. = 30.

28,800 = 130 x A x 30

A = 7.2 sq. ft.

Now the coil can be designed. Assuming the coil is 36 in. long and 8 in. wide, which gives the area as 2 sq. ft. The coil must have four rows deep and the rows to be staggered for good heat transfer. In this case as shown on sketch the primary tubing has four rows in the face 2 in. apart and 1¼ in. between the rows deep. The coil has four tubes in the face and has a total of 14 tubes each 36 in. long which is equal to 42 lineal feet of primary tubing.

Assuming ½ in. inside diameter of the primary tubing, then

½ in. x 3.1416 x 12 in. long = 18.85 sq. in. per foot of length of primary tubing.

then,

$$\frac{\text{42 ft. x 18.85}}{\text{144 sq. in.}} = \text{5.5 sq. ft. of primary surface.}$$

The coil requires a total of 7.2 sq. ft. of primary surface, so that the difference between 7.2 and 5.5 is 1.7 sq. ft. of primary surface to be changed to secondary surface.

The ratio of secondary surface to primary surface is taken according to design and usually from 10 to 15:1 which would make the required secondary surface in this case 1.7 x 10 or 17 sq. ft.

If on the 42 linear feet of primary tubing, fins ⅞ in. diameter were placed eight fins for each 1 in. of length of tubing, there would be:

8 x 12 x 42 = 4,032 fins.

Area of ⅞ in. dia. fin = .6013 sq. in.

Area of ½ in. tubing o.d. = .249 sq.in.

Area difference = .3523 sq. in.

As there are two sides to every fin, which gives every fin an area of .3523 x 2 = .7046 sq. in. per fin then, .7046 sq. in. x 4,032 fins = 2,840.95 sq. in. of secondary surface.

$$\frac{\text{2,840.95 sq. in.}}{\text{144 sq. in.}} = \text{20 sq. ft. of secondary surface.}$$

(This is close enough to the required 17 sq. ft.)

The design of this coil would be as per sketch.

The coil design holds true under the set conditions, and if any one of these conditions are changed in any way the coil design will also change. This method is generally applied, but no two manufacturers of coils will design them the same. The chief variable being the ratio of secondary to primary surface. Another variable is the size of the primary tubing. There are so many variables that can be used, which is the reason for the many types of coils.

JAMES J. LASALVIA

Simple, Accurate Method of Balancing Multiple Air Supply Outlets Explained

CHICAGO—The final "balancing" of multiple air supply outlets in the air conditioning system so that their air discharge volumes will conform to specifications as done by the conventional trial-and-error method is a costly and unscientific operation, but there is a procedure which permits the job to be done simply and accurately.

At least, that was the claim made for a method described in a paper by George S. Dauphinee and Peter Argentieri of the W. B. Connor Engineering Corp. and presented by Argentieri at the fifty-fifth annual meeting of the American Society of Heating and Ventilating Engineers at the Stevens hotel here.

"A system of air outlets is balanced when (a) each outlet discharges its specified percentage of the total air delivery, and (b) such total air delivery conforms to that specified," it was explained.

The method described "precludes the use of dampers in the ducts to regulate the air delivery through individual dampers and requires the employment of dampers which are part of the outlet and have a known effect on outlet performance," it was also emphasized.

PROCEDURE OUTLINED

How this procedure works is outlined as follows:

"Given a typical installed ventilating system with a multiplicity of air-diffusing outlets (diffusers), all dampers should first be fully opened and capacity readings taken for each outlet. For this operation it is not necessary that the fan volume conform to specifications, but it is important that it be maintained constant while all readings are made.

"Next, a calculation should be made to determine the ratio of actual air delivery of each diffuser to the total actual air delivery from all the diffusers. By comparing these ratios with those required by the specifications, the degree of variation in the air apportionment among the outlets from that desired will be established and will serve as the basis for damper adjustment of the individual outlets.

"The percentage of damper opening required for each diffuser in order to regain the apportionment specified is then calculated, and using the damper calibration factors, all dampers but one are set accordingly."

(The one damper not set is that which is farthest below supplying the fully specified requirements with the damper at the full open position.)

ONE TEST TELLS STORY

"After the dampers have been set, an air delivery determined for any one diffuser will indicate whether its air delivery is in accordance with or varies from that specified for the respective diffuser. If at variance, it will be known that the capacity of all outlets varies from their specified capacities in the same degree, and, then by adjusting the fan speed to produce the capacity required for any one outlet, all other outlets will deliver their respective specified capacities.

"A final check of several outlets will serve to prove the accuracy of balance."

Most of the operations involved in this procedure, point out the authors, are slide rule computations, the manual operations being limited to opening all dampers, determining air delivery from each diffuser, setting dampers, and checking the output of several outlets.

Among the examples of this procedure by the authors in their presentation was one for balancing an air delivery system having five outlets on a duct for which the specified air delivery in c.f.m. is: No. 1, 800; No. 2, 800; No. 3, 1,230; No. 4, 1,000; and No. 5, 560 with the total delivered air being 4,490 c.f.m. The method of procedure is outlined in Table 1.

DUCT DESIGN IMPORTANT

If all diffusers are of the same size and are required to deliver like capacities, capacity conversion computations can be dispensed with, and the percentage of required damper capacity modulation figured directly from the measured velocity readings of the dampers, the authors explained.

Importance of proper duct design, particularly where circular air diffusers are to be employed, was stressed by the authors.

Table 1

A	Diffuser location	1	2	3	4	5	Totals
B	Diffuser size (in. neck dia.)	12	12	14	14	10	
C	Air volume specified, c.f.m.	800	800	1230	1100	560	4490
c	Per cent of total air specified	17.8	17.8	27.4	24.5	12.5	100
D	Anemometer reading (f.p.m.) with all dampers in full operation	2025	1950	1875	1800	1750	
E	Manufacturer's capacity factor	.45	.45	.61	.61	.31	
F	Actual air delivery (c.f.m.) = line E x line D	910	877	1143	1098	543	4571
G	Variation from specified = line F/line C	1.14	1.10	.93	1.0	.97	
H	Base diffuser = Least value in line G			.93			
J	C.f.m. required for specified ratio referred to Base = line H x line C	744	744	1143	1022	521	4174
j	Per cent of total line J = line c	17.8	17.8	27.4	24.5	12.5	100
K	Per cent of full open damper delivery required = line J x 100 / line F = line H x 100 / line G	81.7	84.8	100	93.1	96	

"Unless the air approach within the duct is uniform in the horizontal plane, the air entering the neck of the diffuser will rotate or swirl rapidly, often creating a vortex, and, as a consequence, the discharge volume at the prevailing static pressure will be greatly reduced. . . .

"It is the authors' experience that the only satisfactory and reliable preventive for air entry turbulence is the use of properly designed air-directing and straightening vanes in all elbows and branch take-offs to insure uniform approach velocity to all diffusers."

Marcus Names Hendrey Co. Northwest Representative

HILLSIDE, N. J.—Alvin Marcus, president of the Marcus Transformer Co., Inc., has announced the appointment of the W. R. Hendrey Co., of Seattle, as company representative in Washington and Oregon.

Air Conditioning Permit Issued for County Building

ST. PETERSBURG—A permit has been issued by the city to the county commissioners for air conditioning of the new county building on a cost estimate of $111,500. Durant Bros. of Tampa are the contractors.

The general construction permit issued to Clyde J. Keys was for a total of $501,000.

Heating, Air Conditioning Firm Chartered In Raleigh

RALEIGH, N. C.—Morris & Gorrell, Inc., here has obtained a charter from the Secretary of State to deal in heating and air conditioning equipment. Authorized capital stock is $100,000. W. F. Morris, Jr.; L. R. Gorrell; and A. L. Purrington, Jr.; all of Raleigh, were the incorporators.

ACME PRODUCTS ★★★

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EVAPORATIVE CONDENSERS
DRY-EX WATER CHILLERS
FREON AND AMMONIA CONDENSERS
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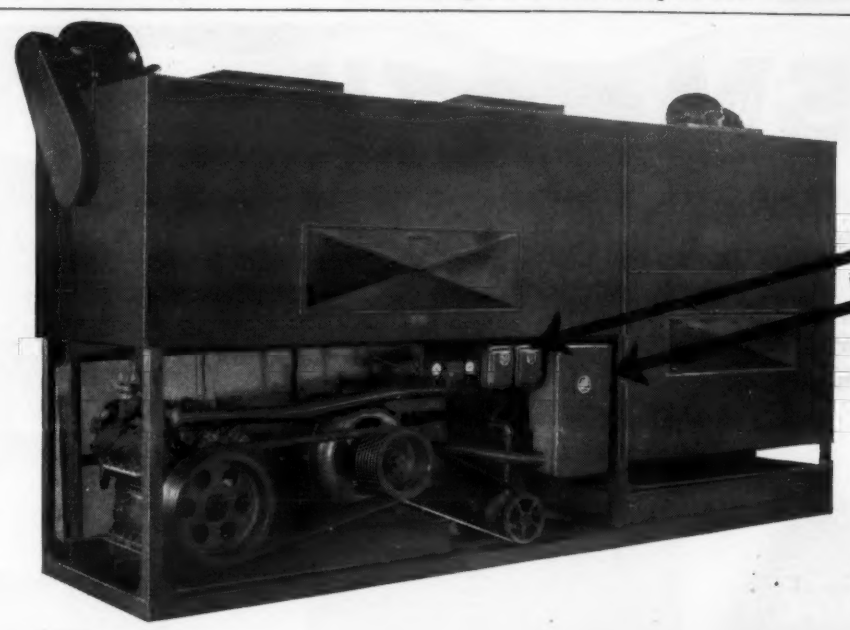


Bulletin 709 Size 1 Starters
Bulletin 709 Size 4 Starter

40-ton Governair air-conditioning unit in building of Civil Aeronautics Administration, Miami, Florida. It has two A-B Bulletin 709 Size 1 starters and one A-B Bulletin 709 Size 4 starter.

GOVERNAIR AIR-CONDITIONERS
equipped with
A-B Quality
Trouble-Free Motor Controls

Allen-Bradley Bulletin 709 Size 4 solenoid starter. Reliable . . . Compact . . . Double-break silver-alloy contacts . . . No contact maintenance.

Allen-Bradley Bulletin 709 Size 1 solenoid starter. The solenoid construction is simple and trouble free.

WHY ARE ALLEN-BRADLEY STARTERS SO POPULAR for Air-Conditioning Service? . . . Because they are trouble free. Only one moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

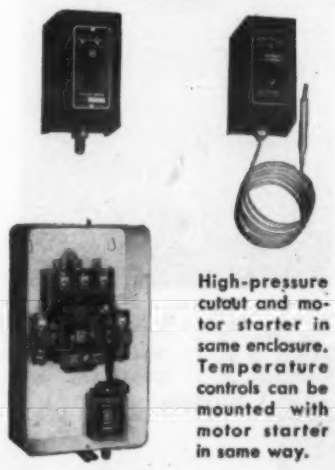
NO CONTACT MAINTENANCE. Allen-Bradley patented silver alloy contacts never need cleaning, filing, or dressing.

DEPENDABLE OVERLOAD RELAYS. Allen-Bradley thermal relays are accurate and dependable even after long service.

The A-B trademark stands for millions of trouble-free operations. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wisconsin.

ALLEN-BRADLEY AIR-CONDITIONING AND REFRIGERATION CONTROLS

PRESSURE AND TEMPERATURE CONTROLS



High-pressure cutout and motor starter in same enclosure. Temperature controls can be mounted with motor starter in same way.

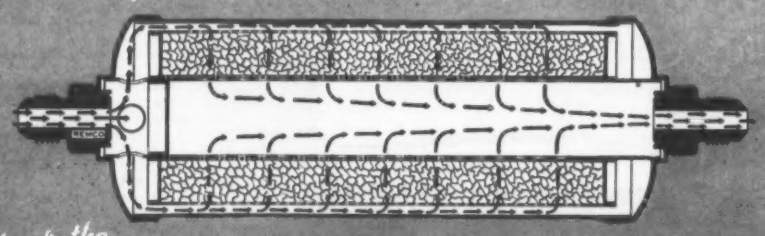
MANUAL STARTER | AUTOMATIC STARTER | COMBINATION STARTER | HEAVY COMPRESSION STARTER

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

EVER HAVE A PLUGGED DRIER?

EVER FIGURE HOW MUCH THEY COST YOU?

"Cross-Flo" DRIER-FILTERS
positively will not clog or plug
and pressure drop is entirely eliminated



Here's the Reason

"Cross-Flo" incorporates an entirely new and exclusive principle of flowing the refrigerant uniformly and slowly *across* the thin, cylindrical bed of drying agent and then through a large, highly-efficient filter—thus is unlike most standard driers that force the refrigerant through a long, narrow, powder-clogged bed. This *different* principle of flow guarantees that clogging and pressure drop are 100% eliminated.

NOW AVAILABLE WITH:
SILICA GEL (for lowside, suction line or other cold locations)
DUCAL DRIERITE (for hot liquid line installation)
Sold by Leading Wholesalers Everywhere.

—CAPACITIES—
LIQUID LINE: ¼ to 7½ HP
LOWSIDE: ¼ to 15 Tons (Freon 12)
SUCTION LINE: ⅜" to ⅞" OD

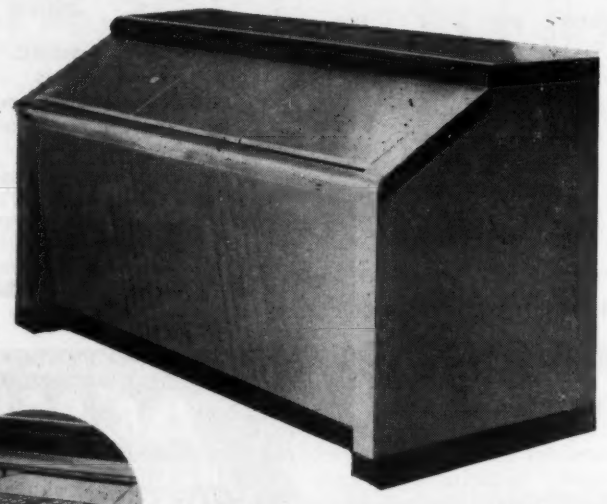
REMCO INCORPORATED
ZELIENOPLE, PENNSYLVANIA

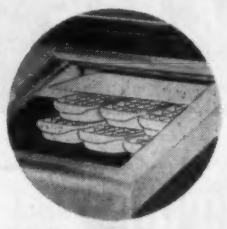
Informative, Technical Literature and prices available on request.

West Coast Warehouse Stock
2103 So. San Pedro St., Los Angeles 11, Calif.

BEVERAGE COOLER

with a really PLUS *feature!*





EXCLUSIVE ICE CUBE MAKER TYPE EVAPORATOR

Provides about 25 lbs. Ice Cubes when and where you want them.

This new cooler, an outstanding advancement in Beverage Refrigeration, makes ice cubes in the same cabinet beverages are stored and provides an ideal "it pays for itself" selling theme.

Entirely automatic, disappearing doors, movable partitions, 3" insulation, aluminum interior, vapor sealed cabinet, stainless steel trim, toe insert with sloping front—the ultimate in mechanical and design perfection.

Dealers & Distributors Invited To Contact

UTICA SHEET METAL CORPORATION
ORISKANY BOULEVARD, WHITESBORO, NEW YORK

What's New

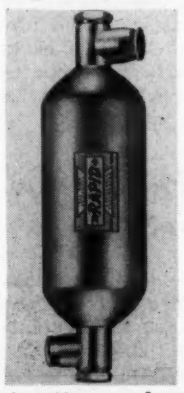
Dehydrator Refills with No Break In Connection

CHICAGO—Fine Products Co., 185 N. Wabash St. here, is now in production on a new, larger Rapid refillable dehydrator that is said to offer a low initial cost and broader uses than the smaller model manufactured by the company.

The larger dehydrator is being made in two sizes, both with 1⅛-in. o.d. sweat connections. No. 7 is 16 in. in over-all length, with an 11-in. body and a 125-cu. ft. silica gel capacity. It is recommended by Fine for 10-ton installations.

The No. 8 has an over-all length of 21¾ in. with a 17-in. body. It has a 200-cu. in. silica gel capacity.

A completely new feature of the large dehydrator is its special design



that permits refilling without breaking the sweat connection, Fine declared. It mounts vertically and no discounting is necessary to refill. Bulk silica gel can be used.

Other exclusive features include large removable inlet and outlet screens, one piece, leakproof construction, and small joint areas, the manufacturer said. He continued:

"The double outlet screen is a cone-type screen inside a finger-type screen, both 120 mesh, plus a lamb's wool filter.

"Inlet screen is 50 mesh. Hex adapters at each end provide a positive wrench hold and simplify refilling. There are no large flanges.

"As in the smaller Rapid refillable dehydrator, the new large model has balanced dimensions which provide maximum dispersion area and thorough contact with the silica gel. It is supplied filled with silica gel and protected against moisture seepage and tampering with plugged ends which are plastic dipped."

Evaporative Condenser Handles Multiple Jobs

TRENTON, N. J.—A new evaporative condenser, made in four models with capacities of from 2 to 8 tons, has been introduced by the Kramer Trenton Co. here.

The new units, 2, 3, 5, and 8-ton sizes, are claimed to operate with only the service normally required for an average refrigeration system.

One of the outstanding features of the unit is a new type of recirculating pump developed by Kramer which provides a large volume of water at low power consumption.

The manufacturer stated that the pump is individually powered, thus eliminating belt drives, and is packless and greaseless. He claimed that the large volume of water insures the washing down of dirt accumulation from the air stream and insures that the evaporating coil will never be dry to cause scaling.

The sump tank and drain pan are constructed of stainless steel while the upper part of the casing is made of specially treated aluminum.

Another feature is a non-clogging water diffuser that consists of a vast number of diffusing holes—from 84 on the 2-ton unit to 268 on the 8-ton job. These, it is claimed, give continuous, even water distribution over the coil, which is of bare tube construction.

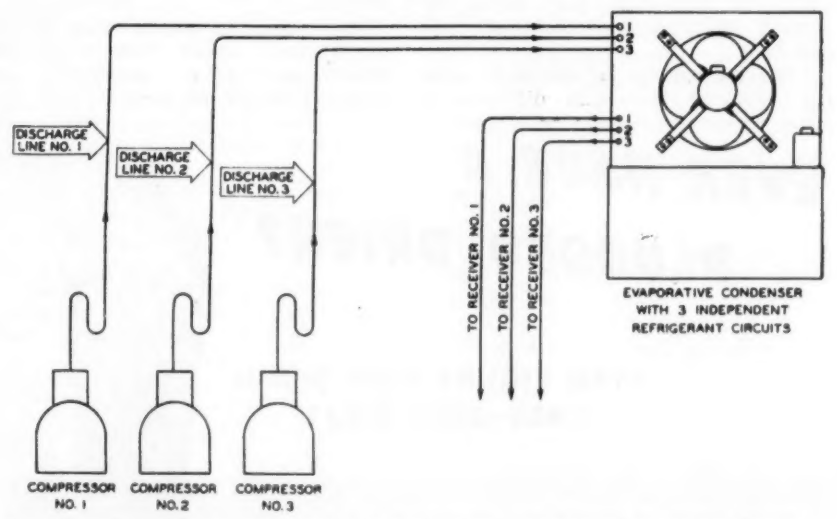
The Kramer evaporative condenser is designed to overcome an external pressure equivalent to 50 ft. of straight ducting or 10 ft. of straight ducting in conjunction with one turn or elbow when the duct size is the same size as the flange on the unit.

Liquid receivers can be furnished separate from the evaporative condenser with saddle strap hangers for wall or floor mounting. The receivers are of heavy steel construction and conform to the ASME code for unfired pressure vessels.

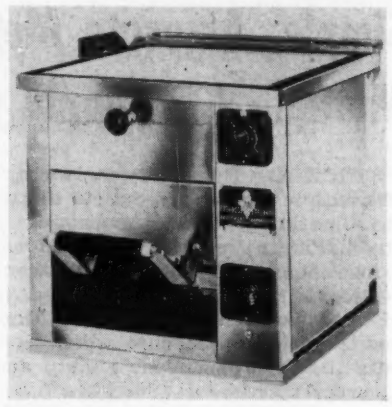
Though the unit is designed for ceiling mounting, stands can be supplied for floor mounting in conjunction with outdoor or indoor installations. The stand consists of two cradles and four legs, which are shipped knocked down.

Standard fan motor and pump motor voltage on all models is 220 volt, 60 cycle, single phase; 110 volt, 60 cycle can be supplied on special order.

* * *


DISCHARGE LINE NO. 1
DISCHARGE LINE NO. 2
DISCHARGE LINE NO. 3
TO RECEIVER NO. 1
TO RECEIVER NO. 2
TO RECEIVER NO. 3
EVAPORATIVE CONDENSER WITH 3 INDEPENDENT REFRIGERANT CIRCUITS
COMPRESSOR NO. 1
COMPRESSOR NO. 2
COMPRESSOR NO. 3

This diagram shows that three independent refrigerant circuits can be handled by a single evaporative condenser.



'Midget' Char-Broiler

QUAKERTOWN, Pa. — A new, "midget" gas char-broiler and grill that requires only a 15½ by 15½-in. counter space has been introduced here by MagiKitch'n Equipment Corp.

With the unit, the manufacturer said, foods are cooked from above and below, with glowing radiant heat, and without the use of grease or oil.

SMOOTH QUIET DEPENDABLE

Chieftain CONVENTIONAL COMPRESSORS

Chieftain Single

Chieftain Twin

Chieftain "4"

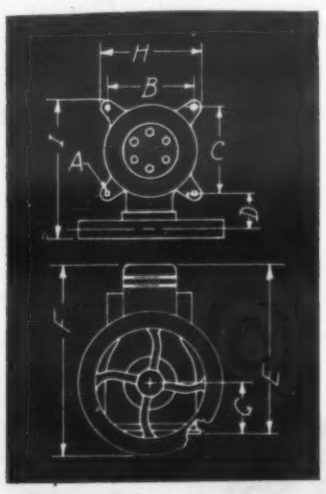
Your best bet for replacement installations . . . reliable Chieftain Compressors! They're smooth, quiet, dependable in operation . . . designed and built to provide the maximum in long-life, trouble-free performance at minimum first cost. ☆ Precision machined throughout. ☆ Forced feed lubrication for reciprocating parts. ☆ Automatic cylinder lubrication. ☆ Triple inspection and careful selective fitting of all parts. ☆ Available in single, twin, and four cylinder models to meet requirements of a wide range of commercial applications.

COMPRESSOR DATA

Model No.	Bore	Stroke	Cylinders	Cubic Inch Displacement	Flywheel O.D. In.	Shut-Off Valve		Oil Charge	Net Weight	Shipping Weight
						Suction	Discharge			
500A	1⅞"	1⅞"	1	2.33	8½"	⅜"	⅜"	12 oz.	30	32
1300	1¼"	1¼"	1	1.53	8½"	⅜"	⅜"	12 oz.	30	32
1000A	1⅞"	1⅞"	2	4.66	9⅝"	⅜"	⅜"	18 oz.	37	39
1400	1¼"	1¼"	2	3.06	9⅝"	⅜"	⅜"	18 oz.	37	39
2300	1½"	1⅞"	2	5.06	9⅝"	½"	⅜"	18 oz.	37	39
1200	1⅞"	1⅞"	4	9.32	11"	⅝"	⅜"	24 oz.	63	78
1800	1½"	1⅞"	4	10.12	11"	⅝"	⅜"	24 oz.	63	78

DIMENSIONS

Model	A	B	C	D	E	F	G	H	I
500	1 11/32" Sq.	5"	5"	1⅞"	9 13/16"	11 53/64"	2⅜"	7 13/16"	8 13/16"
1300	1 11/32" Sq.	5"	5"	1⅞"	9 13/16"	11 53/64"	2⅜"	7 13/16"	8 13/16"
1000	1 11/32" Sq.	5"	5"	2¾"	9 13/16"	12 27/64"	2⅜"	7 13/16"	10 13/32"
1400	1 11/32" Sq.	5"	5"	2¾"	9 13/16"	12 27/64"	2⅜"	7 13/16"	10 13/32"
2300	1 11/32" Sq.	5"	5"	2¾"	9 13/16"	12 27/64"	2⅜"	8 1/16"	10 13/32"
1200	1 11/32" D.	5¾"	7"	2 13/32"	11½"	13 51/64"	3 5/16"	14¾"	10 29/32"
1800	1 11/32" D.	5¾"	7"	2 13/32"	11½"	13 51/64"	3 5/16"	14¾"	10 29/32"



Chieftain

TECUMSEH PRODUCTS COMPANY
Tecumseh, Michigan
WORLD'S LARGEST INDEPENDENT PRODUCER OF COMPRESSORS AND CONDENSING UNITS FOR THE REFRIGERATION INDUSTRY

"Confidentially the 1949 Ben-Hur Freezer Line Can't be Beat!"

Heard at the Show

"America's Finest" 1949 BEN-HUR Farm and Home Freezers

"Today's top value in freezers" . . . that's what BEN-HUR engineers and designers were shooting at again in this year's line . . . to give you and your customers better value-per-freezer-dollar to fit every family's needs. And this was confirmed by hundreds at the January Shows, who saw a preview of the three great new models in the 1949 BEN-HUR Freezer Line.

It's THE line to please your customers. Judge it for yourself . . . the new design beauty and cabinet front, the wealth of valuable new operating features, new convenient food baskets and racks, new patented cold control and temperature indicator, new safety hardware, new accessories . . . PLUS another dozen time-proven features made famous by BEN-HUR Farm and Home Freezers.

Make 1949 a BEN-HUR Year FOR YOU! CHECK them all . . . then
Write for the BEN-HUR Complete Line Sales-and-Profit story.

Model 299
9.19 cu. ft. size.

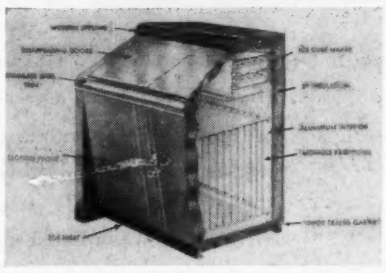
Model 2189
18.45 cu. ft. size.

Capacities: 425 to 900 lbs.

BEN-HUR MFG. CO.
Dept. AC, 634 East Keefe Avenue
Milwaukee 12, Wisconsin

BEN-HUR FARM and HOME FREEZERS

What's New (Cont.)



Ice cube making compartment in the top is an added feature of this beverage cooler. Movable partitions are another feature.

* * *

Beverage Cooler Has Ice Cube Maker, Too

WHITESBORO, N. Y.—A new dry beverage cooler that is claimed to be entirely automatic in operation has been introduced by the Utica Sheet Metal Corp. here.

The manufacturer claims the unit has an exclusive refrigeration system that circulates cool air to every part of the cabinet by means of a heavy-duty blower.

Another exclusive feature, he says, is an ice cube maker compartment that will make approximately 25 lbs. of ice cubes at one time.

Other features are movable partitions that can be adjusted to fit the user's needs, and an inward and downward sloping front to the cabinet.

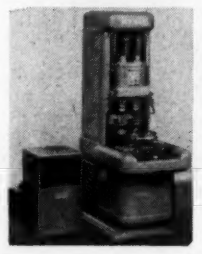
For automatic operation, the user has only to set a dial to the desired temperature and, when needed, to throw a switch to defrost.

The cabinet is made of heavy gauge aluminum on an all-welded steel base. Doors—of the disappearing type—and trim are of stainless steel.

The three-door remote type unit has a capacity of 28 cases of steinie size bottles. The self-contained model has a 21-case capacity and the two-door model 18-case capacity.

Coolant Cooler Has Many Commercial Uses

HAZEL PARK, Mich.—A 5-gal.-per-minute coolant cooler (model 50-AC) for grinding, honing, and machining operations has been added to its line by Frostrode Products at 2373 E. Eight Mile Rd. here.



The new 50-AC is a companion model to the larger (15-gal.-per-minute) Frostrode coolant cooler (model 75-AC) and is designed to continuously maintain coolant temperature at a maximum of 20° below room temperature at rated capacity.

Completely self-contained, it comes as a package unit, completely wired and ready for connection to all types of machine tools. No water connections are necessary.

Features of the model 50-AC are the use of straight passages for uninterrupted streamline flow of coolant through the cooler at high efficiency; minimum of floor space required; insulation of the unit for high thermal efficiency; independence from other services (such as water); ability to handle all conventional coolants; and elimination of any attention on the part of the machine operator.

To achieve the latter, an hermetically sealed thermostat with integral controls is provided. Thermostats on the standard model are adjustable to maintain any desired temperature between 20° below and 10° above room temperature.

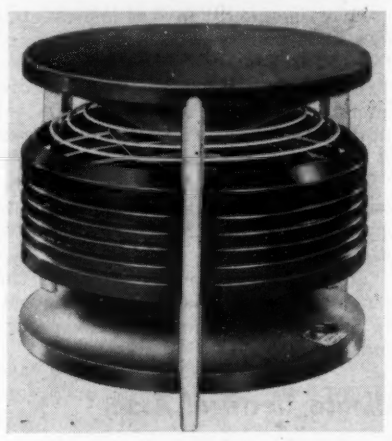
Operation is by a ½-hp. hermetically sealed compressor unit. The evaporator, employing "Freon-12," is of single copper tube coil type with spiral counterflow.

Pressure drop in this unit is said to be less than 5 lbs. at top flow.

Low-Level Circulator Prevents Stagnation

ROCHESTER, N. Y.—Fasco Industries, Inc. here has announced a new Lo-Level Circulator that is said to take cool air from the floor zone and spread it into all parts of the room quietly and without drafts.

Called the model N-55, the circulator stands 14 in. high and has a 15-in. diameter. Deep-pitched 12-in. aluminum blades are driven by a 1/20-hp.



heavy-duty Fasco motor and deliver 3,500 c.f.m. They can be regulated to three speeds.

According to the manufacturer, the fan blades thrust the air upward against an aerodynamic cone designed to spread the air around at a controlled height. The low-pressure area formed above the top of the circulator causes a secondary circulation of the upper air. Thus, he said, there is no stagnant air in the room when the circulator is operating.

For cooling glasses or mugs is this new La Crosse Cooler Co. under-the-bar fixture.

* * *

6 Glass Chiller Units Introduced by La Crosse

LA CROSSE, Wis.—A mechanically refrigerated glass chiller unit, for use where present legislation prohibits wet refrigeration of glasses, has been introduced by the La Crosse Cooler Co. here.

The unit, made in six different models, is designed to fit under the standard 42-in. bar and contains two separate compartments each with 4-cu. ft. capacity. This capacity can be translated into 200 2-lb. mugs of 4¾ by 3½-in. size, according to the manufacturer.

The company claims the unit can chill one compartment filled with the above mentioned mugs from 75° F. to an average temperature of 16° F. in 2¼ hours. Lighter glasses chill proportionately, it added.

Cooling is accomplished by three cold plates, one at each end and one in the center which acts as a partition. The glass chiller, in the self-contained models, is equipped with a ⅓-hp. low-temperature condensing unit. Pressure control is set at 12 lbs. cut-in and ½ lb. cut-out.

The case measures 40½ in. high, 28 in. deep, and 38 in. long. For the two self-contained models using the box-type housing, 19½ in. are added to the length. For the two self-contained models using the utility housing, 24 in. are added to the length. The remaining two models are remote installation units.

All models have 4 in. of Fiberglas insulation, vapor sealed.

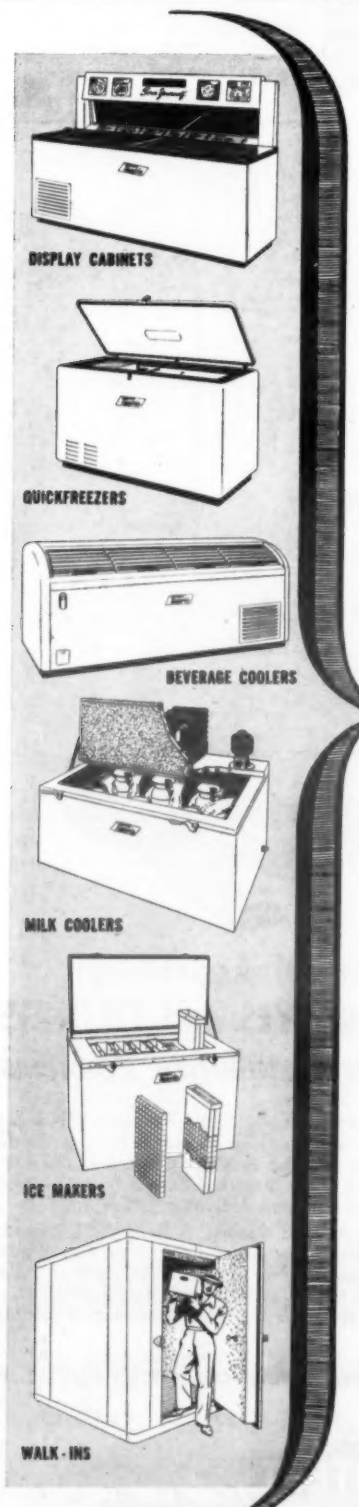
Each compartment is equipped with a top sliding door to insure minimum of cold spillage.

Three of the models, one in each category—remote, with box-type housing, and with utility housing—are finished in baked black enamel with stainless steel doors and trim. The other three are furnished with stainless steel front, ends, and top.

List prices on the various models of glass chillers are as follows:

Model No.	Type	List Price
809	Remote	$358.00
809SS	Remote, stainless steel	$450.40
810	Self-contained, box-type housing	$658.22
810SS	Same as 810, stainless steel	$781.40
810U	Self-contained, utility housing	$683.18
810USS	Same as 810U, stainless steel	$839.14
811	Removable tier divider	2.20

The standard La Crosse warranty applies to these units, the company said.



ONE OF THE OLDEST and largest manufacturers of commercial refrigeration (we could say most famous too) presents its 1949 line.

The models sketched were pictured in an earlier issue of this publication and many of you readers are familiar with them.

To alert, aggressive distributors who realize that "order taking" is over . . . real selling is back . . . Torvic presents this quality line, sales styled for accelerated selling.

Torvic now and in any year

1949 will be a year of rewards for the real salesman.

Supporting your aggressive sales efforts will be Torvic's full color point-of-sale displays and dealer helps.

Enterprising organizations, well financed and able to form distributorships will *phone, telegraph or write to J. K. Noel, Jr. for prompt details on how Torvic will lead you along the brighter path to profits.

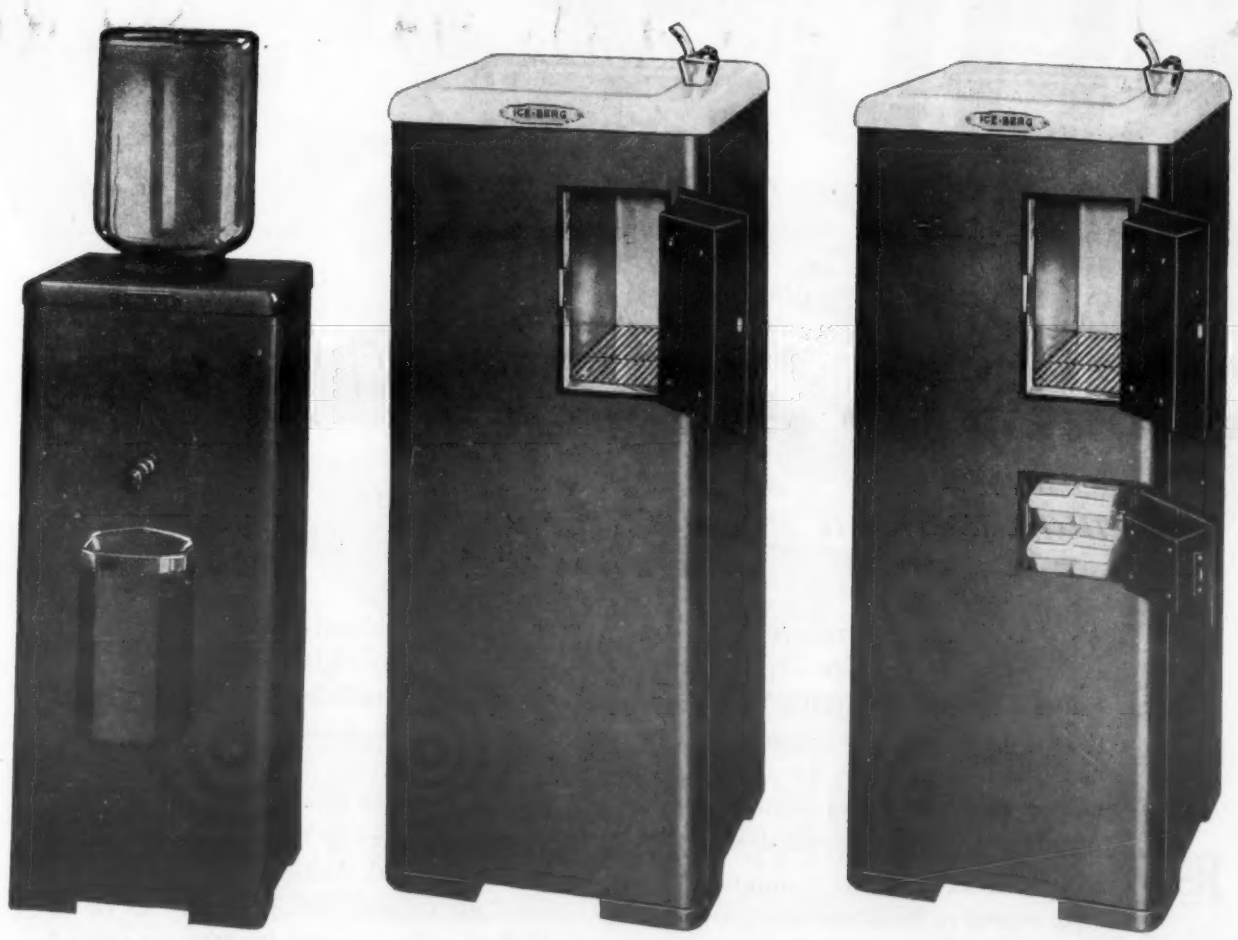
*VICTOR PRODUCTS CORPORATION HAGERSTOWN, MARYLAND

A FUNKHOUSER INDUSTRY

THE ICEBERG CORPORATION

opens New Dealer Opportunities with its

NEW PRESSURE COMPARTMENT COOLERS



MODEL 125-A

All models of bottle coolers are still in the line.

MODEL 125-FC

Pressure Model with Compartment. Dealers everywhere have been asking for them for a long time.

MODEL 125-FA

Compartment with icecubes. This type Cooler was originated by Iceberg. Uses Plastic Cube Trays.

DEALERS WANTED - WRITE for CATALOGUE and PRICES of COMPLETE LINE

MANUFACTURED BY

THE ICEBERG CORPORATION

SPRINGFIELD, MASSACHUSETTS

Reconditioning

Tennessee Concern 'Reconditions' Refrigerators for Dealers, 'Refinishes' Cabinets for the Public

CHATTANOOGA, Tenn.—The sign on an attractive new building front at 1046 McCallie Ave. reads Morrison & Bailey Co., Refrigerators—Appliances—Factory Refinishing—Repairing—Reconditioning.

Robert A. (Bob) Morrison is the president of this new company; O. J. Bailey is secretary-treasurer; Harold Higgins is in charge of the mechanical refrigeration department; while Harry VanArsdale is the foreman of the refinishing department.

Morrison said their firm is set up for volume operation in refinishing "trade-ins" for local appliance dealers and also to aid housewives in servicing and refinishing their refrigerators to make them "like new." Furthermore, a refrigerator is loaned to the housewife while her unit is serviced.

"Dealers," emphasized Morrison, "can come any time and buy anything 35% off, and dealers have first chance at it."

The wholesale, or dealer, prices are:

4, 5, or 6-ft. boxes	$20.00
7, 8, or 9-ft. boxes	25.00
Above 9 ft.	30.00
The retail prices are:	
4, 5, or 6-ft. boxes	$35.00
7, 8, or 9-ft. boxes	40.00
Above 9 ft.	45.00

In November, their first month of operation, Morrison & Bailey Co. serviced between 40 and 50 refrigerators. When they increase their personnel to capacity load, they will be able to handle a maximum of 100 units per week.

The plant is equipped with a pneumatic spraying booth for re-enameling, and du Pont enamel is used exclusively. The spray room is built of sheet metal with a concrete floor and is lighted with DeVilbiss floodlights. Also built into the spray room is a large suction fan to carry away excess paint odors.

Four infrared light panels (six lights to a panel) are used for baking the enamel; a total of 7,000 to 8,000 watts is used for each unit. In this manner, the units dry from the inside out overnight. This pushes up volume in that it enables them to be handled the following day. The baking room is next to the spray room; here there are four panels, one in each corner. This baking process is responsible for the factory-like refinishing job which makes the units look like new.

"A lot of our work is still in the research stages as yet," Morrison commented.

Minor repairs are done on motors. They do not, however, rewind motors but send them to someone equipped to do such work when it is necessary. They replace gaskets, replate shelves, and adjust or replace hinges and door latches. If the cold control is sluggish, they adjust it.

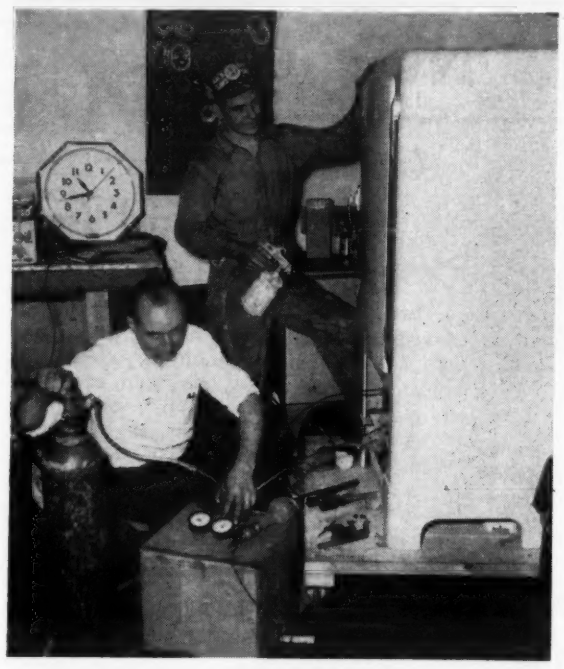
Morrison says the firm has used two mediums of advertising: the radio and the newspaper. Three times a week over Station WAGC, five minutes each broadcast, Announcer Harry Thornton tries to dramatize their story to the housewife to show what this service has to offer her.

Advertisements in the newspaper classifieds brings results in the shape of old refrigerators.

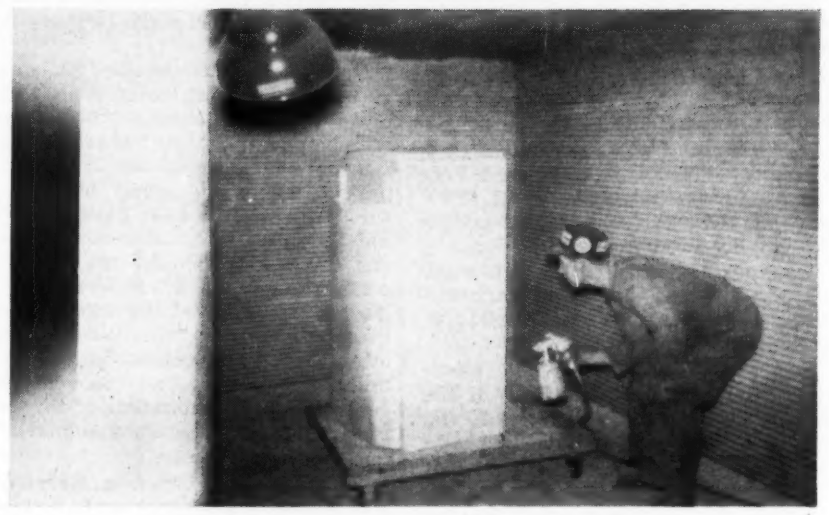
They also boast a technical library consisting of a complete line of maintenance and repair manuals on all types of refrigerators.

Morrison indicated that they will continue to advance and hope to expand to the range field at a later date.

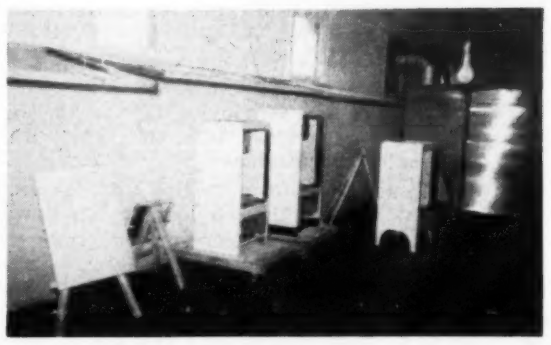
"Everything is done to make the refrigerator look as nearly as possible like a new one," Morrison concluded.



In this picture Harold Higgins (left), in charge of mechanical repairs, is testing a motor, while Harry Van Arsdale, who directs the refinishing work, prepares to touch up an old cabinet.



Spraying booth built of sheet metal has DeVilbiss lamps, and a suction fan to carry away paint odors.

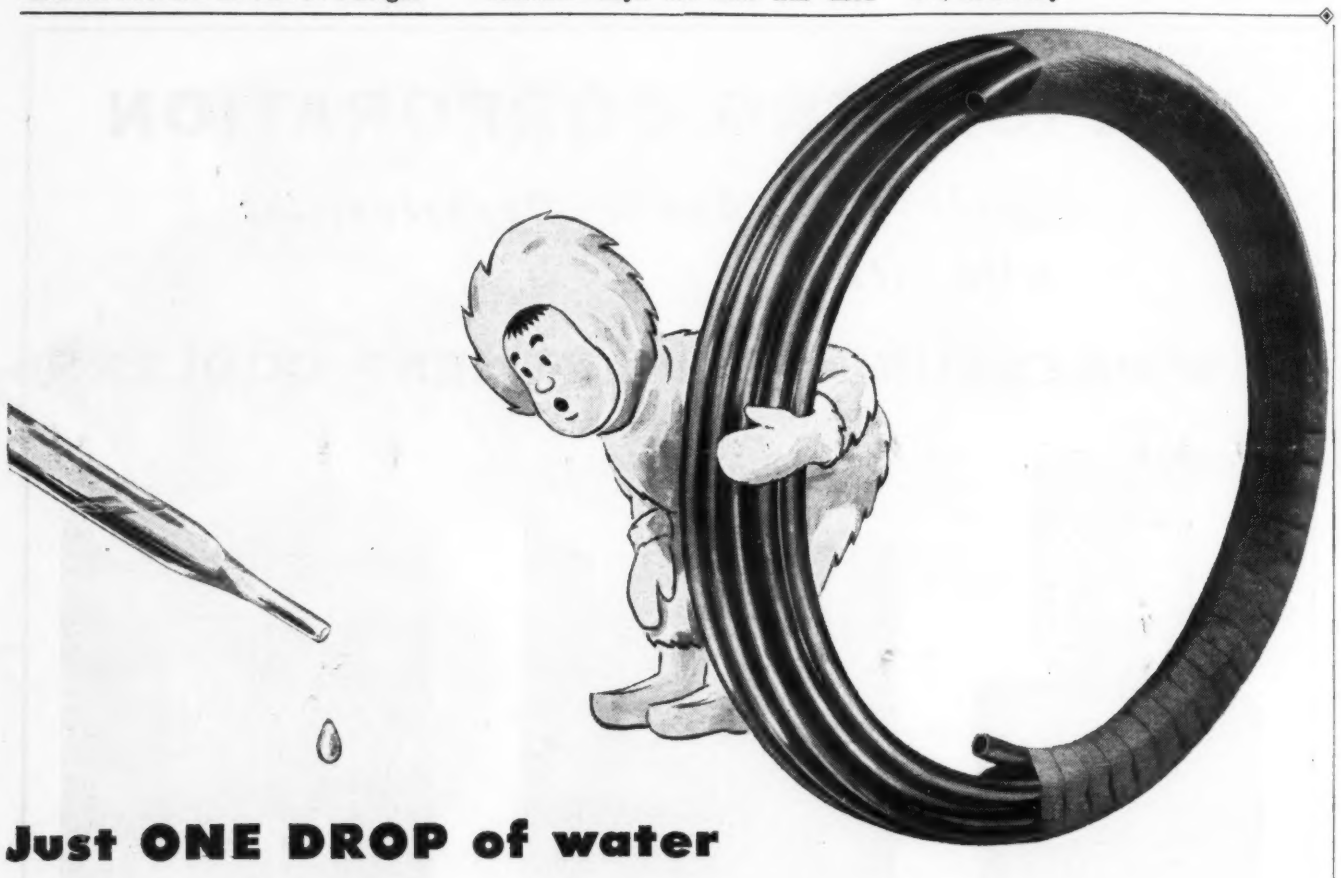


Cabinets are transported around the large shop room on dollys. Sheet metal spraying booth is at far right.

Atlanta Electrical Assn. Names New Officers

ATLANTA — Harry Satterwhite, secretary of Mather Bros. Co., Inc., and manager of its Atlanta furniture store, was recently elected president of the Atlanta Electrical Association, succeeding Mayo B. Clark, Clark Equipment Co.

Other new officers are Jake Cawthon, Cawthon & Hollums Appliance Store, vice president, and Charles S. Martin, Chas. S. Martin Distributing Co., secretary.

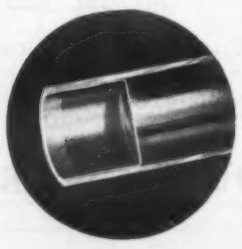


Just ONE DROP of water

may mean a needless service call

A SINGLE DROP OF WATER could—and often does—freeze solid in the expansion valve, knocking out the system and making necessary a time-consuming purging operation. Sometimes food supplies are endangered, too... but always there's the inconvenience of suspended service.

Of course, there are a number of ways that excessive moisture can get into a refrigeration system... but installing Anaconda Refrigeration Tubes is *not* one of them.



Anaconda Refrigeration Tubes are made of 99.9% pure, specially deoxidized copper, with a degree of "dryness" exceeding even the rigid requirements established by the A. S. R. E. The exclusive Anaconda Cup Seal on both ends protects the bright, clean, dry interior right to the point of installation.

These uniformly soft tubes are readily bent and flared. Available in all standard sizes up to and including ¾" O.D. in 50-foot coils. Longer lengths on special order. Next time ask for them by name.

47415 Rev.

OTHER PRODUCTS: Precision-made tubes in Copper, Brass, Bronze, Aluminum and Copper-Nickel Alloys; from .015" O.D. to 1" O.D. with walls down to .004"; round, square, or irregularly shaped; in coils, straight lengths or special forms. Bourdon tubes, thermal expansion bulbs.

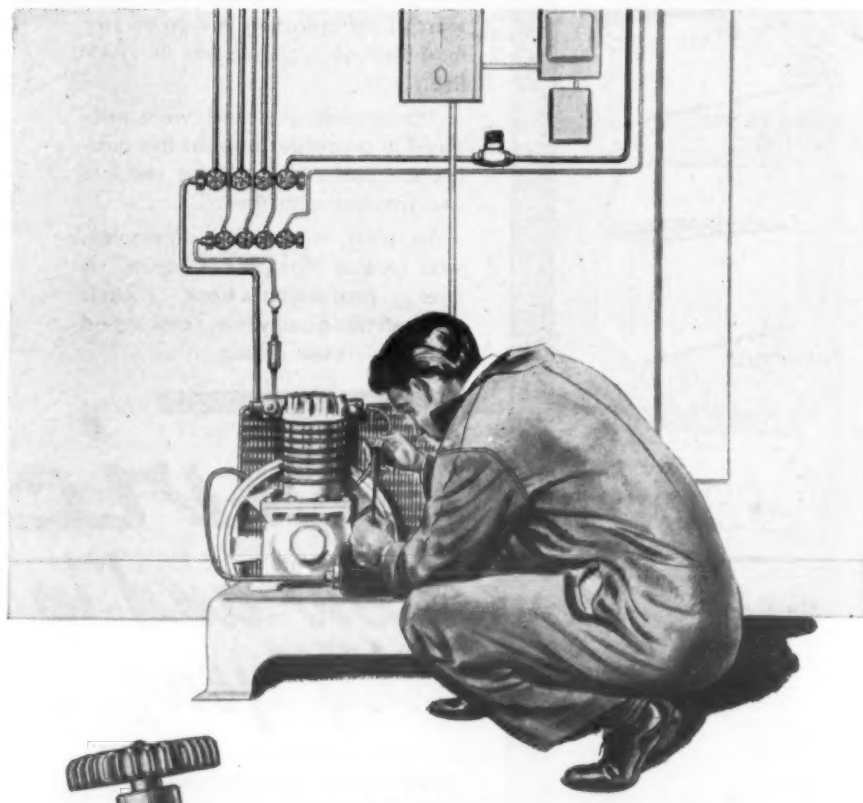
THE AMERICAN BRASS COMPANY—FRENCH SMALL TUBE BRANCH

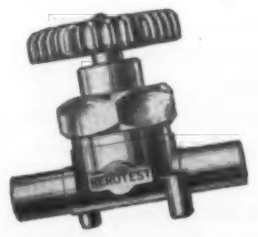
General Offices: Waterbury 88, Conn. • *Subsidiary of Anaconda Copper Mining Company*

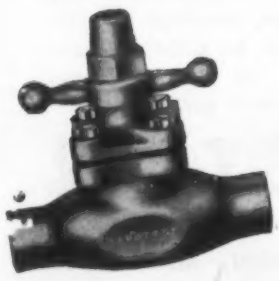
In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

ANACONDA from mine to consumer

Anaconda Refrigeration Tubes







Need Technical Assistance on VALVES and FITTINGS? ... other Installation Problems?

Right in your locality . . . your Kerotest Wholesaler offers complete technical assistance . . . up-to-date trade information and the services of trained personnel to help you solve your most baffling installation problems with Quality Kerotest Valves and Fittings.

His ample stocks and speedy delivery will expedite your needs . . . and for scarce items . . . no one is better equipped to come to your aid. For the best in valves and fittings and the most comprehensive service . . . depend on Kerotest and see your Kerotest Wholesaler regularly.

KEROTEST MANUFACTURING CO., PITTSBURGH 22, PA.

See your KEROTEST *Wholesaler*

AMERICA'S FIRST NAME IN QUALITY VALVES

Wyo. Studies Bills To Control Locker Plants, And Limit Tie-In Sales at Wholesale Level

Locker Law Violators Could Draw Prison Terms

CHEYENNE, Wyo.—Bills to establish a division of refrigerated locker plants within the state department of agriculture, file a certificate of ownership on meats stored in locker plants, and make it a misdemeanor for a manufacturer or distributor to require any Wyoming dealer to purchase products other than those desired in order to retain his dealership, have been introduced in the Wyoming legislature.

The measure proposing state control of locker plants (HB-115) was introduced by Representatives Franklin B. Sheldon and John W. Armstrong. It would create a division of refrigerated locker plants and establish a board to supervise the division.

It would also create the office of supervisor of refrigerated locker plants, establish minimum standards for locker plant construction, make mandatory the licensing of such plants and provide penalties for violations.

The bill would appropriate $80,000 to carry on the work of the division during the coming two years.

The proposed division would be under the supervision of the state commissioner of agriculture. Two members of the refrigerated locker industry and the state locker supervisor would compose the membership of the board.

The state supervisor would be appointed by the governor as would the two members from the industry. Supervisor's term would be four years and his annual salary $5,000.

Plant operators without a license could be fined $50 to $500, or imprisoned for 90 days, or both, the bill states. Failure to conform with sanitary standards as established by the measure would make the operator subject to the $50-$500 fine as well as to a prison term of up to 180 days. License fees for the state plants would be prescribed by the board.

SF-34 introduced by Senators Norman Barlow and Leeland U. Grieve would require persons taking meat to a commercial frozen food locker to sign a certificate and statement of ownership. The locker plant operators would be required to keep the certificates on file for one year.

Another bill introduced by Senators Grieve and Rudolph Anselmi make it illegal for Wyoming dealers to be required to buy certain items in order to obtain the merchandise they wish.

It also would make unlawful any manufacturer or distributor requirements that the dealer construct a certain type of building or display facilities in order to retain his dealership.

Maize Heads Noma Sales To Supermarket Chains

NEW YORK CITY — Joseph H. Ward, executive vice president Noma Electric Corp., has announced the appointment of Edwin R. Maize as supervisor of sales of Noma products to supermarket chains.

Maize was formerly general sales and advertising manager, H. Baron and Co., food manufacturers. Maize has many years of sales experience in the wholesale food field.

He will be mainly concerned with the merchandising of Noma's decorative lighting products, toys and dolls. He will also assist in sales of commercial frozen food and ice cream cabinets.

G-E 6-Page Folder Describes Plastic Sealing Caps, Sleeves

PITTSFIELD, Mass.—A six-page illustrated folder (No. CDP-589) describing G-E plastics sealing caps and sleeves has been issued by the General Electric Co.'s Plastics Div.

Describing the protective material as tamperproof seals easily applied after first being swollen in dilator, the folder discusses their application in air conditioning, refrigeration, packaging, and electrical fields.

Physical and electrical characteristics of the sealing caps and sleeves, as well as their resistance to heat, moisture, and chemicals, are tabulated in a properties section. A full page is devoted to instructions for dilating the products and applying them to tubing, bottle tops, pipe fittings, and electrical connectors.

Wild Game Killed In Western State Swells Storage In Lockers and Home Freezers, Warden Indicates

CHEYENNE, Wyo.—Rental lockers and home freezers, both in Wyoming and in the communities of out-of-state big game hunters who took out Wyoming licenses last fall, held 8,000 more big game animals as a result of the 1948 hunting season than they did the previous year.

State Game Warden Charles Hanscum reports that the total kill of 44,581 animals set a new high.

Out-of-state hunters had their game frozen and prepared for shipment in the locker and cold storage plants of various Wyoming towns and cities.

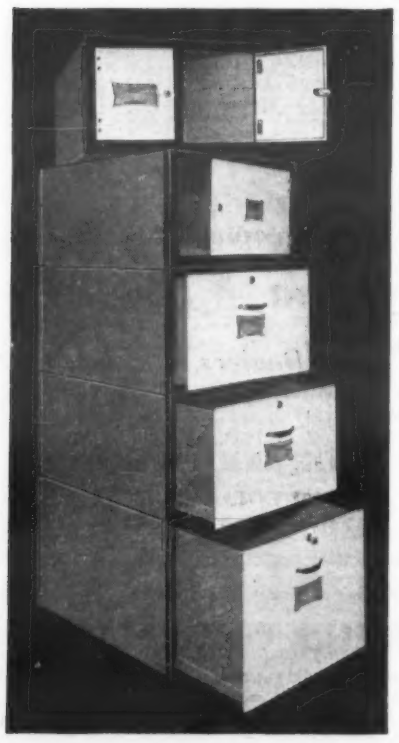
Most of the Wyoming hunters also patronized locker and cold storage plants, although an increasing number, especially among ranchers, stored the meat in their home freezers.

The 1948 kill for every specie of big game except elk was greater than for 1947, Warden Hanscum stated. Total of 7,036 elk was bagged in 1948 compared with 7,209 the year before. Other figures included 21,019 deer in 1948 compared with 18,752 a year ago; moose, 214 and 180; bear, 352 and 143; mountain sheep, 48 and 22; antelope, 15,912 and 10,521.

Since 1935

Better Make Hay While The Sun Shines!

Locker Operators never were so favorably situated as today. Better take time by the forelock. Build NOW for the present and future. Build Lockers and Sub-plants. Cash in on the favorable swing to you. You buy for less—sell for less, so you can keep your customers coming. Habits once formed are hard to discard. Savings you offer—more than offset locker costs and service charges—not considering customer's sense of security. Be sure to build with or expand with



MASTER FOOD CONSERVATORS

The "pioneers" of the business. The Lockers of no regrets. Who but MASTER would dare to say "DO IT NOW?" We not only say it but repeat it.

Take A Tip From The 'Industries' Spark-plug'

We don't ride the favorable wave—we figure your future interests and stick our necks out doing so. We need one another—so let's get together. Write us your problems.

Endorsed by and sold through distributors of refrigeration and insulation.

MASTER MANUFACTURING CORP.
121 Main Street Sioux City 4, Iowa

Member of Frozen Food Locker Institute, organized for your protection.

Over 1,500,000 Master Food Conservators in Use

new RAPID DUZ-ALL
CARBONIC GAS
SERVICE CYLINDER

• Ideal for many purposes, this new dependable, durable Duz-All unit is completely equipped with fire-horn, connecting hose, tire adapter, flare adapter and standard C02 charging connection for easy refilling. Safe, economical. 5 lb. C02 capacity. ICC-3AA-1800 Cylinder.

Use Rapid Duz-All for:

1—PRESSURE-TESTING LINES
2—BLOWING OUT COILS AND CONDENSERS
3—INFLATING TIRES
4—EXTINGUISHING FIRES

SEE YOUR WHOLESALER
Fine PRODUCTS CO.
185 NORTH WABASH AVENUE • CHICAGO 1, ILLINOIS

DISTRIBUTORS WANTED
for
ROYAL DRY BEVERAGE COOLERS

Incorporating the following features:

Rust-proof Stainless Steel and Aluminum Interiors—Silver Soldered Peerless Fin Coils—Blower Type—Sliding Hard Rubber Doors—Heavy Sealed Insulation.

IMMEDIATE DELIVERY IN 4, 6, and 8 FOOT LENGTHS IN BOTH REMOTE AND SELF-CONTAINED MODELS.

Write or Wire **ROYAL COOLER COMPANY** Telephone 140
BREESE, ILLINOIS

Only
THERMOBANK
by KRAMER

Keeps Coils Frost-Free Automatically at Any Temperature without

LABOR
ATTENTION
ELECTRIC HEATERS
BRINE OR WATER SPRAYS

KRAMER TRENTON CO. *Trenton 5, N. J.* WRITE FOR BULLETIN R147

WORLD TRADE NEWS

Photograph taken in general office of Henwood's Department Store, Durban, South Africa, shows Chrysler Airtemp packaged air conditioners which keep employes comfortable. Other units were recessed into walls of luxurious tea room recently opened in the store. Air Conditioning & Engineering Co., Johannesburg, handled the installations.

From Australia comes this picture showing window display and part of showroom display in new Melbourne branch of F. C. Lovelock Pty. Ltd. Elaborate stock fixtures on ground floor are surrounded by 54-ft. sales counter which extends full length of showroom to rear entrance leading to spacious parking area. Entire ground floor is set aside for sales and display. On second floor is general office, accounts section, and conference hall and library, to which is attached a modern kitchen. Third floor is occupied by repair division, technical department, and workshop. Nearly 400 persons visited premises during recent grand opening.

Camera Records Industry Activity 'Round World

During trip through Antilles, Andrew J. Asch, Jr. (right), RECO International Div., Refrigeration Engineering Corp., poses with Gaylord Brunelle, manager, Refrigeration Div., San Miguel & Compania, San Juan, Puerto Rico. Brunelle was formerly in refrigeration department of Export Div. of International Harvester. San Miguel, which has modernized showroom facilities, handles products of several U. S. manufacturers, including RECO line.

A $1,000,000 contract for refrigeration equipment which will reportedly mean an 82,000-ton annual increase in northern Europe's food supply, is here being signed in the offices of Carrier Corp.'s International Div., New York. Participating are (seated, l. to r.) Heman Greenwood, Carrier vice president in charge of the International Div.; Leif Gran Kahrs, board chairman of Bergen Fiskeindustri A. S., Bergen, Norway; (standing, l. to r.) E. T. Andersen, Carrier representative in Norway; Gustav Lorentzen, consulting engineer, Bergen Fiskeindustri; and A. S. Rabe, Carrier regional manager for Europe. Equipment involved is to go into new fish freezing and cold storage plant, which will be finished in 1952 and will be one of world's largest, officials said.

On same trip, Asch snapped this picture of new showroom and shops being constructed for Compania Antillana de Importacion y Exportacion in Ciudad Trujillo, Dominican Republic. In foreground are Fernando Viyella San Miguel, secretary-treasurer of the firm (right), and Jack H. Connors, representing RECO International Div. Compania Antillana is a distributor for a number of industry producers of both domestic and commercial equipment.

Getting instruction on dairy plant refrigeration during Worthington Pump & Machinery Corp.'s International Student Training Program are (l. to r. around table) Ove Esrum, Denmark; Bharat C. Oza and Hasmukh J. Jhaveri, India; Serge H. Placend, France; and Sonthi Keyurovong, Siam. Instructor is O. B. Wert of Worthington's Air Conditioning and Refrigeration Div.

Rheem Plant In Argentina To Start Production Soon

NEW YORK CITY—The tenth affiliated plant abroad of Rheem Mfg. Co. is nearing completion at Buenos Aires, Argentina, and is scheduled to be in the production of steel shipping containers by March, it was announced today by W. E. Zander, senior vice president.

The new company, Sociedad Anonima Industrial y Commercial Aceros Rheem, will supply steel drums to the petroleum, vegetable oils and fats industries of Argentina. Before the end of 1949, the new company expects also to be manufacturing tanks. Addition of home comfort appliances, including water heaters, is contemplated to meet Argentina housing needs.

Name Connors Export Mgr. Of Refrigeration Engineering

PHILADELPHIA—Jack H. Connors, formerly chief engineer of the U. S. Department of Agriculture in charge of its tractor program for the Government of India, has been appointed export manager of Refrigeration Engineering Corp. here. During World War II, Connors was equipment maintenance officer for the U. S. Army Engineers in the China-Burma-India theater.

Toronto Fair Opens May 30

TORONTO, Ont. Can. — Canada's second International Trade Fair will be held in Toronto May 30 to June 10, it was announced recently. More than 95% of the 1,455 manufacturers from 28 countries who exhibited at the first fair last year reportedly intend to display products at the 1949 fair, and inquires have been received from 150 others.

HORSEPOWER--
harnessed by HUSSMANN!

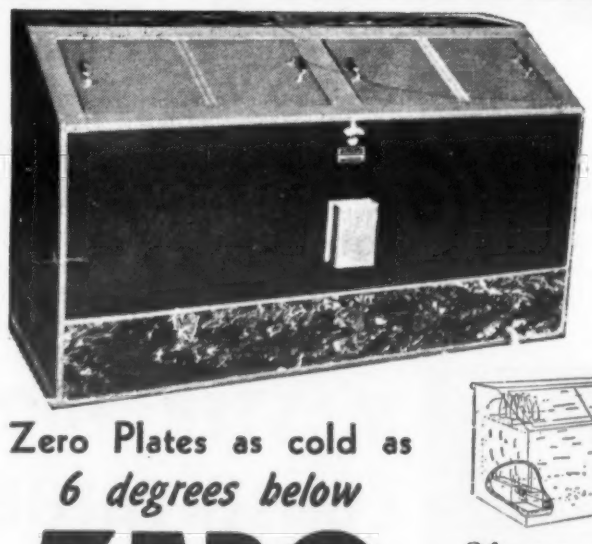
HUSSMANN Condensing Units are made in sizes from ¼ HP to 2 HP, in both air-cooled and water-cooled types—to deliver efficient, effective refrigeration economically, quietly, and safely.

Vibration and noise are reduced to a minimum. The compressor and fan have been designed, and belt guard added for greater durability and more modern, streamlined appearance. The load is completely safe for all motors of proper rating, regardless of manufacturer.

And, to facilitate servicing and belt adjustments, a belt tightener has been added to the larger sizes. Furthermore, many parts are interchangeable throughout the entire line, for the sake of simplifying operations.

The newly improved HUSSMANN line of Condensing Units is truly an important contribution to the Refrigeration Industry—another outgrowth of HUSSMANN Know-How.

HUSSMANN REFRIGERATION, INC.
HUSSMANN BLDG. • ST. LOUIS 6, MO.
THE NAME THAT STANDS FOR *Completeness* IN FOOD STORE REFRIGERATION EQUIPMENT

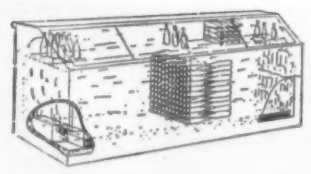


Patented
No. 2,442,719

Zero Plates as cold as
6 degrees below
ZERO

With air at BLIZZARD Speed, Cools Beverages faster than any other cooler.

Yet a control keeps the beverages at the exact desired temperature.



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'Constant Bride' Star Gets a Few Pointers

Above Mrs. Allen, star of "The Constant Bride," color movie featuring the Edison Electric Institute's All-Electric Kitchen program, gets a lesson in modern electric cooking from a bride.

* * *

'49 Kitchen Drive--

(Concluded from Page 1, Column 5)

tures of residential electric load, plus the formidable competition of the gas industry, are sufficient to justify the electric utility industry's intensive effort to reach the long-time goal represented by these figures."

This goal, he added, will be reached when all kitchens in wired homes are electrified by modern standards.

Built around the slogan, "Of Course—It's Electric!" the program is spearheaded by the "Kitchenizer's Digest," a 40-page consumer piece which is "the most authoritative and helpful book ever prepared on the all-electric kitchen," it was stated by McQuiston.

Ten editors of womens' magazines and other leading authorities helped compile the book, which presents complete information on kitchen planning, wiring, financing, and other questions. The Digest will be distributed by electric companies to their customers.

It was explained that the term "kitchenizing" means (1) an all-electric kitchen, (2) adequate and proper wiring, and (3) proper planning and treatment of the three all-electric kitchen work centers.

A color motion picture, "The Constant Bride," has been prepared as part of the program, and tells a human-interest story of the all-electric kitchen and its benefits to the housewife. The film, which runs 27 minutes, will be made available by the utilities for customer showings.

Newspaper advertisements, a series of radio spot announcements, outdoor advertising, a kitchen planning kit, and other promotional aids are included in the program. Materials have been designed to supplement the advertising of electrical appliance manufacturers, who will be encouraged to use the program slogan in their advertising and sales activities.

Advance orders from electric companies for the film, "Kitchenizer's Digest," and other aids indicate wide support for the program, McQuiston said.

American Stove Postpones Dividend, Cites Profits

ST. LOUIS — Though sales last year reached a new high, directors of the American Stove Co. here found net profit so unsatisfactory that they have postponed "any dividend action until later in the year, when the business trend will be more definitely established."

Adversely affected by an expansion program, which is now completed, the company's estimated profit for the year is only slightly higher than the dividend paid during the year.

The company explained to stockholders that "the range industry generally hit a slump last November. Retail sales slowed down, dealers became overstocked, sales and profits of all range manufacturers and dealers alike were adversely affected."

It pointed out that December and January sales were slow and not at a profitable rate. An upward rise is expected this month, however, with the rest of the year to produce a good volume, the company stated.

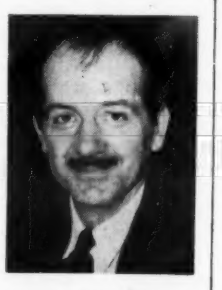
Mahaffay, Palmer Named To Engineering Posts at International Harvester

EVANSVILLE, Ind.—W. E. Mahaffay has been appointed the first chief engineer of International Harvester's refrigeration division and J. S. Palmer, a former product engineer, has been named assistant chief engineer, C. D. Harris, manager of engineering, has announced.

As chief engineer, Mahaffay will be the operating head of the entire product engineering organization of the refrigeration organization.

Mahaffay began his career with Harvester in 1935, in the gas power section of the engineering department at Tractor Works in Chicago. He later held positions of laboratory

W. E. Mahaffay



J. S. Palmer

setup man, draftsman, engineering inspector, plant equipment designer, and assistant plant engineer.

In 1944 Mahaffay was transferred to the refrigeration division, then located at McCormick Works in Chicago, as a product engineer. He moved to Evansville in 1946, when the Evansville Works was opened. He was appointed assistant chief engineer late in 1947.

Mahaffay, a native of Chicago, was graduated from Northwestern university in 1933 with a degree of B. S. in mechanical engineering. He is vice chairman of the American Society of Refrigerating Engineers.

Palmer has been with the Harvester organization since 1926, when he received degrees in mechanical engineering and mathematics from Elm's college in France. He was born in Paris as an American citizen and received his early education in Russia and France. His father, H. L. Palmer, was manager of several Harvester offices in Europe and Asia.

Palmer moved to refrigeration in 1936 when Harvester's household products were being developed. He went to McCormick Works in 1944 and Evansville Works in 1946.

Dept. Store Inventories Reduced 20% In Month

WASHINGTON, D. C.—Between Nov. 30, and Dec. 31, 1948, department stores reduced their inventories an average of 20%, the Federal Reserve Board estimated recently.

In addition, they shrunk their outstanding orders from $379 millions on Nov. 30 to $292 millions on Dec. 31.

Dollar value of inventories at the end of November was $1,053 millions and at year's end was $817 millions. At the end of 1947, inventory dollar value was $769 millions.

Ward Refrigerator, Mfg. Names 6 Regional Mgrs. And 3 Sales Executives

LOS ANGELES—The appointment of six regional managers and three sales executives in the home office was announced recently by the Ward Refrigerator & Mfg. Co. located here.

Joe Milton was named regional manager of the southwestern division. He will cover the state of Texas excepting El Paso and will headquarter at the company branch office in Dallas.

Jack Bodie and Jack Schrote were appointed regional managers of the western division. They will cover the southern portions of California and Nevada, the states of Utah, Arizona, Colorado, and New Mexico, and El Paso Texas. They will have their headquarters at the factory branch which is located at 1500 W. Santa Barbara Ave. here.

Harold J. Kelley was given the northern California and northern Nevada territory and will headquarter in San Francisco.

Stanley Smith took over the Pacific northwest division which includes the states of Washington, Oregon, and Idaho. His headquarters is in Portland, Ore.

Lou Stark, regional manager of the midwest division, will cover the midwest area from Chicago.

At the home office, Clare Short has been named general sales manager, Brent Cochran was appointed assistant sales manager, and Gordon H. Fitch became promotional sales manager.

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Thorough knowledge of commercial refrigeration and coils in particular. Graduate engineer preferred.

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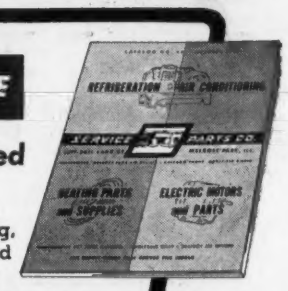

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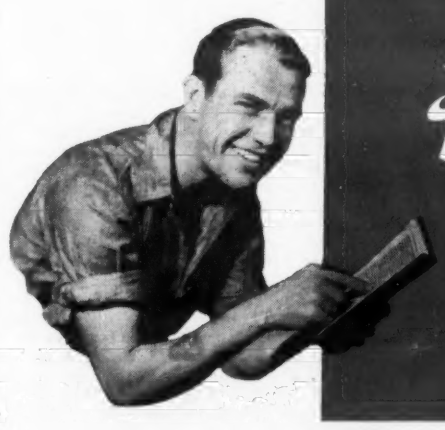

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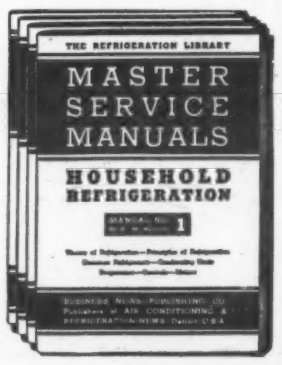

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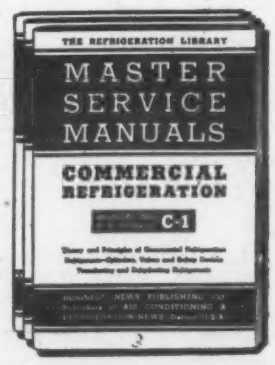

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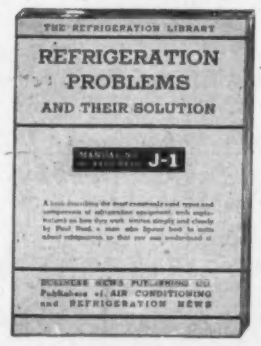

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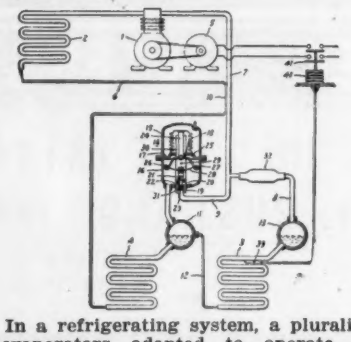
PATENTS

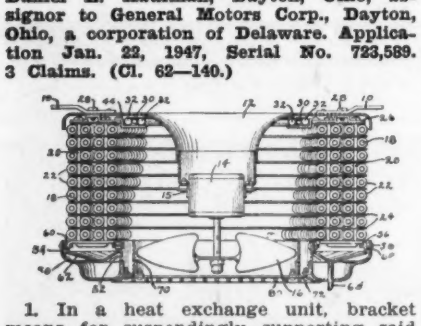
Week of November 23 (Continued)

2,454,537. TWO-TEMPERATURE REFRIGERATING SYSTEM. Leonard W. Atchison, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application May 5, 1947, Serial No. 745,940. 4 Claims. (Cl. 62—3.)



1. In a refrigerating system, a plurality of evaporators adapted to operate at different temperatures, means for supplying refrigerant to said evaporators, means for withdrawing refrigerant from said evaporators, means responsive to the pressure in one of said evaporators for controlling the flow of vaporized refrigerant from said one of said evaporators to said withdrawing means, and means for controlling the flow of vaporized refrigerant from the other of said evaporators to said withdrawing means, said last-named means being effective on the blocking of flow of vaporized refrigerant from said one of said evaporators to provide for flow of vaporized refrigerant from said other of said evaporators.

2,454,654. AIR COOLING APPARATUS. Daniel L. Kaufman, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 22, 1947, Serial No. 723,589. 3 Claims. (Cl. 62—140.)



1. In a heat exchange unit, bracket means for suspendingly supporting said unit, a top plate secured to said bracket means, circular air cooling coils, means for suspending said coils from said bracket means, fan means for circulating air to be conditioned in thermal exchange with said cooling coils, a circular substantially U-shaped in cross-section bottom housing, insulating means for securing the upper edge portion of one leg of said housing to said coil suspending means, a circular drip tray disposed within said housing, means for securing said drip tray to the upper edge portion of one of the legs of said housing so as to support the tray in spaced relationship to the other leg of said housing and to the bottom wall thereof, and a collar-like member surrounding said fan means and extending substantially throughout the height of the inner leg of said housing in spaced relation thereto for shielding the same from incoming air circulated by said fan means.

2,454,715. DEVICE FOR PREVENTING EXCESSIVE CONDENSATION IN THE INSULATING SPACE OF REFRIGERATORS. John S. Palmer, Chicago, Ill., assignor to International Harvester Co., a corporation of New Jersey. Application March 8, 1946, Serial No. 653,045. 9 Claims. (Cl. 62—89.)

1. A refrigerator wall construction having inner and outer walls forming an insulating chamber, a heat insulating material disposed within said chamber, a cooling element for cooling said chamber, and a conduit in communication with the uncooled atmosphere and said chamber, said conduit including a portion in heat exchange relationship with said cooling element for condensing water in the atmosphere passing through said conduit and for freezing the same therein.

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Detailed information concerning specific abstracts should be addressed to Patent Division, E. I. du Pont de Nemours and Company, Wilmington 98, Del.

Pat. 1,879,893. Refrigeration Composition. Sept. 27, 1932. Chloropicrin is added to methyl chloride for refrigeration systems to act as a warning agent in case of leakage.

Pat. 1,886,034. Odorant for Refrigeration. Nov. 1, 1932. The methyl, ethyl tertiary butyl and isopropyl esters of bromacetic acid are used as a warning agent for refrigerants such as methyl chloride.

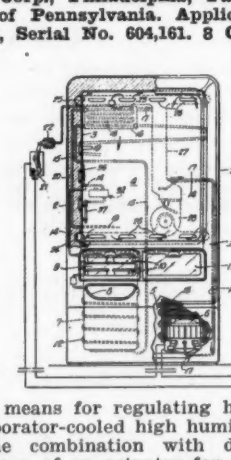
Pat. 1,905,817. Odorant for Refrigeration. Apr. 25, 1933. Alkyl mercaptans, e. g. ethyl mercaptan, as warning agent for hydrocarbon and chlorohydrocarbons used as refrigerants.

Pat. 1,918,371. Preparation of Methyl Chloride and Methylene Chloride. July 18, 1933.

Pat. 2,123,434. Process of Cleaning. July 12, 1938. Heat exchangers cleaned by forced circulation of a liquid solvent, e. g. trichlorethylene.

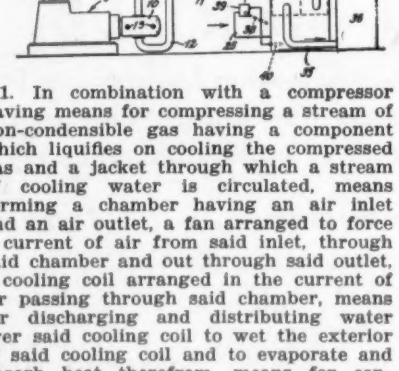
Week of November 30

2,454,855. REFRIGERATOR HUMIDITY CONTROL. John J. Bauman, Abington, Pa., assignor by mesne assignments, to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application July 10, 1945, Serial No. 604,161. 8 Claims. (Cl. 62—6.)



1. In means for regulating humidity in an evaporator-cooled high humidity chamber, the combination with dehumidifying means, of an actuator for said means responsive to variation in the temperature differential between the said evaporator and the air within said chamber.

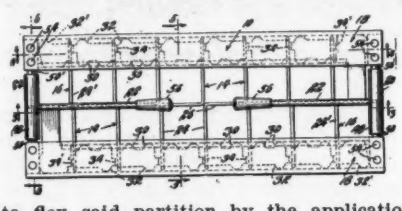
2,454,883. APPARATUS FOR COOLING COMPRESSED GASES. Martin H. Olstad, Port Washington, and Allan E. Williams, White Plains, N. Y., assignors to Niagara Blower Co., Buffalo, N. Y., a corporation of New York. Application Dec. 22, 1943, Serial No. 515,310. 16 Claims. (Cl. 62—2.)



1. In combination with a compressor having means for compressing a stream of non-condensible gas having a component which liquifies on cooling the compressed gas and a jacket through which a stream of cooling water is circulated, means forming a chamber having an air inlet and an air outlet, a fan arranged to force a current of air from said inlet, through said chamber and out through said outlet, a cooling coil arranged in the current of air passing through said chamber, means for discharging and distributing water over said cooling coil to wet the exterior of said cooling coil and to evaporate and absorb heat therefrom, means for conducting said stream of non-condensible gas through said cooling coil to cool said gas and liquify said component, and means for collecting said liquified component.

2,454,958. ICE TRAY. Sven W. E. Andersson, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application April 5, 1946, Serial No. 659,959. 13 Claims. (Cl. 62—108.5.)

12. A grid for dividing an ice cube tray into compartments, said grid comprising a flexible, vertical partition and members connected to the upper part of said partition at points spaced therealong and projecting horizontally from the top of the partition, said members being movable

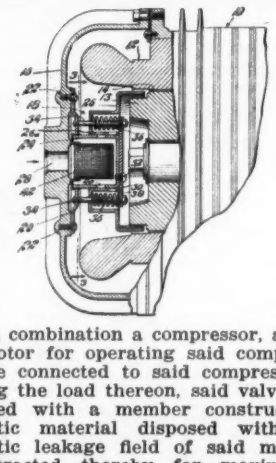


to flex said partition by the application thereto of opposed forces parallel to but displaced laterally from the partition.

2,454,960. ICE TRAY. Harrison C. Berkeley, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

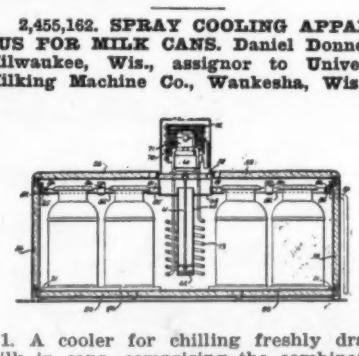
1. A unitary molded plastic freezing tray, comprising: an integrally molded container pan and a longitudinal partition having its bottom edge molded to the pan bottom but having its end edges substantially detached from the end walls of said pan whereby to increase the flexing distortability of this integrally molded unit, a series of spaced separate cross partitions intersecting said longitudinal partition and retained substantially in normal freezing position by an interlocking relationship therebetween and thereby forming a unitary pan and grid structure, the edges of said cross partitions being movable relative to the adjacent pan walls whereby to increase the distortability of the unitary pan and grid structure to facilitate the removal of the frozen ice blocks by manual flexing.

2,454,976. COMPRESSOR LOAD PROTECTOR. Clyde E. Ploeger, Evansville, Ind., assignor to Servel, Inc., New York.



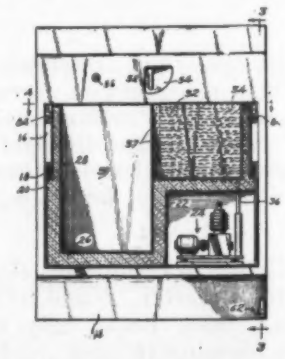
1. In combination a compressor, an electric motor for operating said compressor, a valve connected to said compressor for varying the load thereon, said valve being provided with a member constructed of magnetic material disposed within the magnetic leakage field of said motor to be attracted thereby for moving said valve in one direction, means opposing the attraction of the magnetic leakage field urging said valve in the opposite direction, the construction and arrangement being such that when the magnetic leakage field is of maximum intensity, as at the instant of starting the motor, the valve is moved in one direction to unload the compressor and as the motor approaches running speed the valve is moved in the opposite direction to load the compressor, thereafter during operation of the compressor the valve modulates between open and closed positions in accordance with the intensity of the magnetic field as reflected by the load on the compressor.

2,455,162. SPRAY COOLING APPARATUS FOR MILK CANS. Daniel Donnelly, Milwaukee, Wis., assignor to Universal Milking Machine Co., Waukesha, Wis.



1. A cooler for chilling freshly drawn milk in cans, comprising the combination with a milk can receiving, heat insulated liquid containing tank, of a motor driven chilling unit mounted on the tank and including expansion coils in the tank below the normal level of the liquid therein, a distributing pan supported from the walls of the tank above the maximum level of the liquid therein, a motor driven pump having connections for supplying liquid to the pan from the lower portion of the tank, and flexibly jointed pipe connections for gravity delivery of liquid from the pan to the neck portions of milk cans in the tank.

2,455,182. REFRIGERATOR DRAWER. Oscar A. La Vallee, Wolf Point, Mont.



1. A refrigerator comprising a housing, a drawer slidable laterally from said housing, a refrigerant liquefying unit housed in a chamber in said drawer, said drawer having an insulating liner in the walls and bottom thereof and partition means defining freezing and food storage.

(To Be Continued)

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EXPERIENCED REFRIGERATION man on open and sealed units, some commercial, washing machines fully automatic and others. Many years of experience. Also experienced on sales on these items. Would like to get a position as a salesman or serviceman or both with a factory of this kind. Can give good reference. Write to BOX 3090, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION man with 20 years experience in all phases of service, installation, estimating and customer contact work would like connection with dealer, contractor or manufacturer in California. BOX 3098, Air Conditioning & Refrigeration News.

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WANTED ENGINEER. Old and well established distributor contractor handling nationally known and well advertised equipment, within an hour from New York City, wants a thoroughly experienced air conditioning and refrigeration sales engineer. Must supervise sales force and be capable of handling all sizes of air conditioning and refrigeration up to 50 tons. Salary and override on volume business. Permanent position to man of proven ability. Opportunity to invest in business. Applications will not be considered unless showing fifteen to twenty years field experience. BOX 3087, Air Conditioning & Refrigeration News.

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NIAGARA DUO-PASS evaporative condensers for "Freon" gas. 1—Model 2520 approx. over-all dimensions, 79″ height, 36″ width, 75″ length. Rating tons "Freon" 20 tons at 105° Fahrenheit based on 76° wet bulb and 40° suction temperature. Today's cost $1,592.00. Our selling price $900.00. 1—Model 25x150 approx. over-all dimensions, 79″ height, 35″ width, 70″ length. Rating tons "Freon" 14.5 tons at 105° Fahrenheit based on 76° wet bulb and 40° suction temperature. Today's cost $1,534.00. Our selling price $800.00. Niagara descriptive literature can be mailed upon receipt of your inquiry. Above condensers are new and in original cratings. ALLIED REFRIGERATION CORP., 1635 East 55th Street, Cleveland, Ohio.

RECORDING THERMOMETERS, Bristol, remote 7 day electric, $69. Thermostats, Mercoid, minus 10° to plus 40°, $15. Heat exchangers, Acme, 3 ton @ $27; 2 ton @ $20. Evaporative condensers, Marlo E C 5, $335. Tunnel blast freezer complete 1,800 basic rating, $535. New 1 H.P. to 7½ H.P. water cooled Universal and Copelands at less than distributor's cost. Used Westinghouse 60 ton condensing unit—bargain! 3'6″ x 6'6″ Jamison double batton automatic close doors with track heads for 7'2″ track, 1½″ cork board insulation at $95 each. All new in original factory crates. BIMEL COMPANY, 2600 Colerain Ave., Cincinnati 14, Ohio.

SEALED UNITS rebuilt and exchanged. Prompt service on Coldspot (sealed & semi-sealed). Chieftain, Gale, Tecumseh, Norge and many others. One year guarantee. Write for price list and shipping instructions. BRIGHTON, 3906 Joy Rd., Detroit 6, Michigan.

SPECIAL CLOSE-OUT on brand new freezer plates, coils, and units. Yoder plates—19″ x 31″ @ $3.75; 21″ x 72″ @ $7.00. Dole plates—22½″ x 33″ @ $4.25; 24″ x 79″ @ $8.00; 22″ x 61″ @ $6.00; 22″ x 72″ @ $7.00. (All plates have ½″ male or female end connections.) Bush finned coils 76″ x 16″ x 2¼″ 6 tube single row @ $9.00. Chrysler Airtemp air cooled units—¼ H.P. @ $54; ½ H.P. @ $60; ¾ H.P. @ $102; 1½ H.P. @ $168. Send deposits to GENERAL REFRIGERATORS CORP., 678 Broadway, New York 12, N. Y.

1,000 LBS. ALUMINUM tubing ½″ O.D. x .28″ wall thickness 3 SO @ 40¢ per lb.; 100 gal. Thermal Mastic #446 in 5 & 10 gal. drums @ $2.00 per gal.; 4,000′ Jarrow #B4868 gasket in 7½′ lengths @ 1¢ per ft.; 1,500 flare to flare ½″ connectors @ 6¢; 1,500 ¼″ flare to flare connectors @ 5¢. MIDWEST INDUSTRIES, 835 Osage Ave., Kansas City, Kansas.

NEW THERMOSTATIC expansion valves: Sporlan Stand. ½ T M ⅝ x ½ $5.50 each, Sporlan Stand. ½ T F ⅝ x ½ $5.50 ea., Detroit 893 ½ T F30 10° super ¼ x ¼ P. $4.50 ea., Detroit non-adj. 893 X ½ T F15 8° super ¼ x ⅜ for home freezers or domestic $1.50 ea. Chieftain Hermetics (new) ⅛ HP $42.00 ea., without condenser $39.00, in lots of 10—$37.00 ea., in lots of 10 less condenser $34.00 ea. Seals, GE con sor parts and fittings at ½ price. for scandal sheet. NORTHLAND RIGERATION COMPANY, 1742 W sia Avenue, Chicago 22, Illinois.

1—YORK, AMMONIA, plate type, water cooler, Model SWC-1 with pilot operated suction pressure regu both items new and in original Will cool 30 GPM water from 38° with 22° refrigerant temperature. $1, F.O.B. Macon. L. M. SOLOMON, R.F.D. #1, Macon, Georgia.

SUBJECT TO prior sale: Hermetic tain units—⅛ H. P., $44.50; ⅛ H $48.50 Other well known hermetic H. P., fan cooled, $52.50; ¼ H. P cooled, light duty, $57.50; ¼ H. P cooled, heavy duty, $59.50; ⅓ H. P cooled, $69.50. Open units, sta makes: ¼ H. P., $54.50; ⅓ H. P., ½ H. P., $84.50. Above prices quot lots of six. All open units are 60 single phase. All above units new, ing factory warranty. Write for uni Penn type 260 Apol low pressure co $4.25. Penn type 262 Apol high pre control, $4.25. Minneapolis-Honeywell pressure control, $4.50. Detroit Lubr low pressure control, $4.25. G. E. h fan motor with 10″ fan, $4.50. Su heat exchanger, 13″ over-all, ⅝″ $4.25. Mueller heat exchanger, 14½″ all, ⅜″ x ⅝″, $5.00. Kramer Trenton blower complete, ½ ton, $30.00. Su master drier ¼″ flare x 1¼″ x 5½″ U. S. "Freon" gauge, 4½″ face, 30″ 150# or 300#, with corresponding scale with red warning hand and m ing holes, $4.50. Scientific Instrume dial thermometer, 4½″ face, minus plus 120, 5 ft. tube, $4.50. 1 set "Freon" gauge, 2½″ face, 100# com and 300# pressure, temp. scale, recal mounting holes, $3.50 Ranco type 412 cold control complete, $4.00. Am Injector oil separator, ⅛ ton, $3.50. plates 1—30″ x 55″, 2—30″ x 64″, 3 set, $35.00. 6—5 lb. cans Davision r eration silica gel, $6.00. 1—5 lb. Davison refrigeration silica gel, Crouse-Hinds vapor proof refrig light, with guard, $2.50. WALTE STARR, 1207 George Street, Chicag Illinois.

FRANCHISES WANTED

WANT ANOTHER refrigeration li sell replacing one given up; conti Brunner Mfg. Co. that I have repres for 15 years on both refrigeration pressors and air compressors in we Pa., part of W. Va., Ohio, and Mich Have best jobbing accounts and sold two lines practically all jobbers. assistant working for me. Not inter except first class line and manufac Must have volume prospects and n maker. S. W. HANNA, 1605 Rive Dr., Lakewood, Ohio.

MANUFACTURER'S REPRESENTA with established clientele in New New Jersey and Pennsylvania, inter in representing quality line of comm refrigeration, air conditioning, el water coolers, and allied products. own display room and offices in nor New Jersey. Years of experience know-how in handling dealers and tributors. Financially responsible. 3022, Air Conditioning & Refrige News.

BUSINESS OPPORTUNITIES

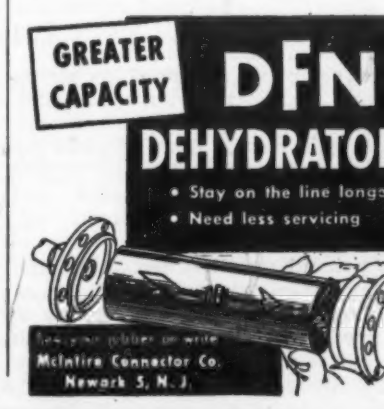
MIAMI, FLORIDA—a leading refri tion, air conditioning, television, appliance sales and service establish —in same Miami location ten Grossed $150,000 and netted $20,000 year. Will sell for $7,500 to cover equipment, and improvements plus chandise inventory at cost—about $ BOX 2992, Air Conditioning & Refri tion News.

MOST COMPLETE shop in San Jo Valley. Complete low pressure, air tioning and heating facilities. 1,000 warehouse, 3,200 ft. new office, di and workshop building, 4,000 ft. fenced yard. Leading franchise counties. House and cabin. 3 t portable welder, tools and equip All $45,000.00. BOX 3096, Air Cond ing & Refrigeration News.

WEST COAST'S largest electrical m facturing concern for sale by o Location Los Angeles. Sales nation and export thru established fran dealers. Substantial profits. $250,00 cludes plant complete with inventory chinery, bldgs. $125,000 down. Ba 10 years. BOX 3097, Air Conditioni Refrigeration News.

MISCELLANEOUS

SERVICEMEN CASH in on the tre dous demand for frozen custard mac Assemble, build, and refrigerate yourself. Prospects everywhere, s just starting. No elaborate mach required, just ordinary shop equip Complete drawings and instruction 2½ gallon frozen custard machine. ENTERPRISE PRODUCTS CO., Box Station A, Cleveland 2, Ohio.



Refrigeration Problems

and their Solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

Motor Trouble (7)

LOAD TESTING THE MOTOR

The proof of the pudding is said to be in the eating thereof. Just as we test the efficiency and capacity of a compressor by putting it on a "pump-up" test, we can also test a motor after it has been repaired or overhauled, by putting it on a load test.

A load test is neither difficult nor expensive to set up and should be set up by every refrigeration repair shop even though no motors are repaired there, for it is often necessary to tell whether it is the fault of the motor, or if the compressor is tight, or if there is some other cause of overload.

There are several methods of setting up a motor load tester. The more inexpensive types put a brake of some sort on the motor shaft, and then with a scale of some sort, measure the torque in pounds that the brake exerts on the motor.

One of these "prony brake" test setups is illustrated in Fig. 2. It consists of a spring scale hung above the motor pulley, with a ... to the hook of the spring ... wrapped two or three turns ... the motor pulley in the direction of rotation of the motor shaft ... of the pulley.

... pulley should not be a V-belt ...ley, but a pulley with a flat face ... as was used with flat belts. It ...ld have no crown and should be ...oth so that it does not grab the cord. If there is any tendency of the cord to grab, a little paraffin or beeswax may be used on the cord.

By pulling downward on the cord, any amount of load can be put on the motor up to the capacity of the ... The amount of pull in pounds, ...ead on the scale, can be calcua... for various horsepower motors, ...rious motor r.p.m. for various ... diameters, by using the follow... formula:

$$\text{Scale Reading (in pounds)} = \frac{\text{Hp.} \times \text{Pulley Diameter (in.)} \times 5{,}235}{\text{Motor r.p.m.}}$$

The diameter of the pulley must include the thickness of the cord, unless the thickness of the cord is less than about 2% of the pulley diameter, in which case the cord thickness may ordinarily be ignored as not sufficiently important to warrant taking it into consideration.

EXAMPLE:

If the pulley is 2 in. in diameter and the cord is ⅛ in. in diameter, the ⅛ in. is about 6% of the diameter of the pulley so it should be added to the pulley diameter and the 2⅛ in. used in the formula instead of 2 in. On the other hand, if the pulley is 4 in. in diameter and the cord is only 1/16 in. thick, the 1/16 in. can be ignored, for it will affect the result less than 2%.

Suppose that we have repaired a ⅓-hp. motor whose full-load speed is 1,750 r.p.m., and we want to test it to see if it will pick up full load and get it up to full load speed and carry it there. As a matter of fact we want to determine if it will pick up and carry at least a 25% overload. So instead of using ⅓ (or .333) hp. in the formula, we will use .333 x 1¼ or 4.2.

We place the motor on the test stand and slip the motor pulley on over its shaft and secure it in place. The pulley has a diameter of exactly 2 in. at the face. We caliper or "mike" the cord from the scale hook and find that it is 3/32 in. in diameter, which we will call 1/10 in. (.1 in.) as accurate enough for our purpose. So as the pulley diameter we will use 2.1 in. instead of 2 in.

Thus to find the pull that we will exert on the cord to impose on this motor ⅓ hp. with a 25% overload:

$$\text{Scale Reading} = \frac{.42 \times 2.1 \times 5{,}235}{1{,}750} = \frac{4{,}617}{1{,}750} = 2\tfrac{2}{3} \text{ or } 2.67 \text{ lbs.}$$

With the cord wrapped around the pulley two or three turns as previously described, but with no pull on the cord, we turn the motor on. With no load it should almost immediately get up to a speed a little above its full-load speed of 1,750 r.p.m.

Now we start to pull on the cord until the scale reads 2⅔ lbs., or 2 lbs. and about 11 oz. The motor will slow down slightly to, in fact, a little below 1,750 r.p.m. for we have a 25% overload on it, but it should carry this load with little trouble. Actually most single-phase motors today used to drive compressors, should carry 40% overload, or about 3 lbs. on the scale instead of 2⅔ lbs.

We have now shown that the motor will carry a 25% overload, but we have not shown that it will pick up this heavy a load from a dead start. We must now test it to see if it will start and bring up to load speed, this same load, which is full load plus 25% overload.

STARTING UNDER LOAD

So we stop the motor, but without loosening the pull on the cord, so even with the motor not running, the scale should show a 2⅔-lb. reading. We again start the motor, but this time it must pick up the 125% load and bring it up to load speed.

It should do this in a matter of 5 or 6 seconds, and after it gets up to full speed, it should continue to carry this load (overload really) continuously, although it may get rather hot, but its temperature should not rise more than 72° F. above room temperature, if it is given reasonable ventilation.

In fact, as stated above, if this is a single-phase motor that is used to drive a refrigerating compressor, it should be able to pick up and carry even a 140% load represented by a 3-lb. reading on the scale.

Fan motors and other motors used to drive other accessories are not designed to start and carry such heavy overloads and may be considered satisfactory if they will start and carry 125% load.

After this test it is well to run the motor until it gets rather warm, even hot, and then repeat the test of starting the 125% load, especially if new bearings have just been put in, to see if the bearings have tightened up when it got hot.

In fact, a new motor or one which has had new bearings put in it, should be run about an hour idle and without load, to give it a chance to run in, before connecting it up to load or testing it for loading.

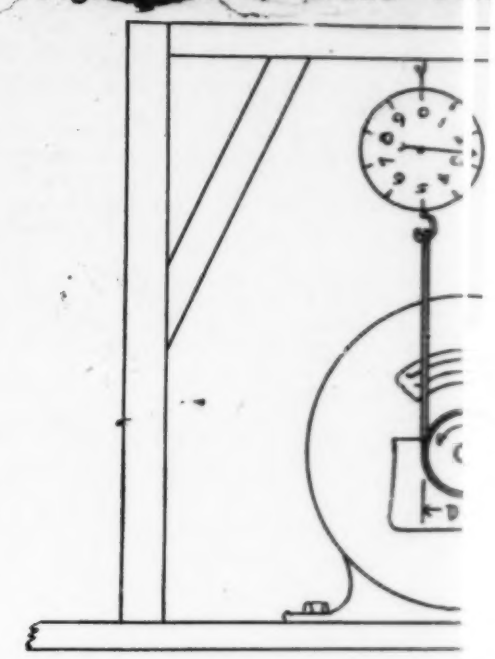
STARTING AT LOW VOLTAGE

The test set may be elaborated by equipping it with an ammeter, a wattmeter, and a voltmeter. A still further addition can be a rheostat in the line to the motor that will enable you to lower the voltage to the motor. Then the motor can be tested for its ability to start under low voltage.

Almost all motors used in refrigeration work are designed so that they will start full load and bring it up to full-load speed, but not an overload at 90% rated voltage. In the case of the above ⅓-hp. motor, it should start and bring up to speed a load of approximately 2 lbs. on the scale, at 90% rated voltage, that is at 99 volts on a 110-volt motor, 103½ volts for a 115-volt motor, 198 volts for a 220-volt motor, etc.

In overhauling a motor, care should be given to see that the oil ring, if one is used, is in the slot in the bearing and turning freely on the shaft, that the waste or yarn is well up around the bearing and is well saturated with the oil.

Fig. ... Prony Brake Test



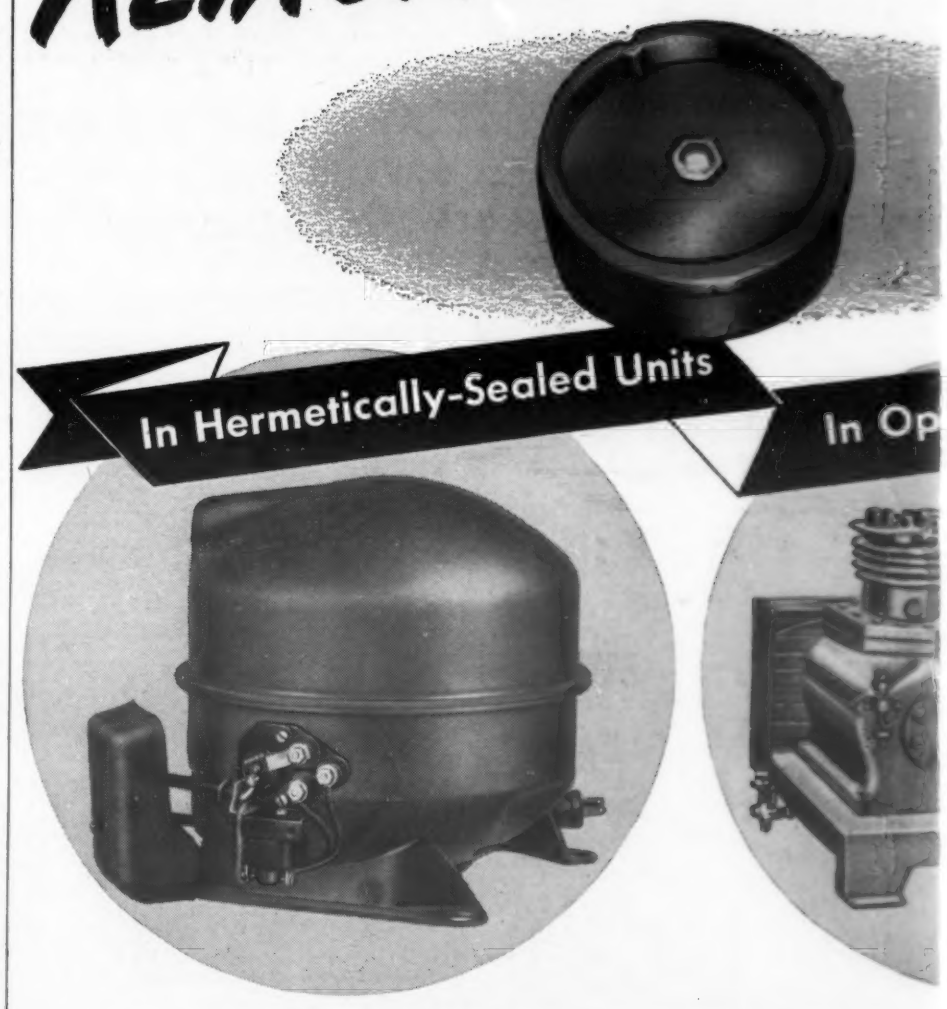
Most motor manufacturers recommend an automobile crankcase oil of about SAE 20. Connections should all be tight on binding screws, and splices soldered and taped while hot, with both rubber and friction tape. Commutator must be clean, smooth, with the mica slightly under-cut, and brushes ground to the commutator and loose in the brushholder.

Starting switches and their actuating mechanism should be clean and free, and properly adjusted to change to the main winding at about three-

FOR TROUBLE-FREE MOTOR C...

USE BUILT-IN

KLIXON PROTE...



Records of compressor manufacturers prove that Klixon Protect prevent motor burnouts in all kinds of compressor units, hermetic open-type.

In hermetic units, Klixon Protectors are mounted on the dome wh they follow every temperature change. In open types they are built i the motor by the motor manufacturer assuring positive overheat protecti

Regardless of the type, should the motor become dangerously overheat the Klixon Protector snaps the power "off" automatically preventing possible burnout. As soon as the motor cools sufficiently, the protec snaps the power "on" again permitting the unit to maintain refrigeration

Protect your compressor by using and specifying Klixon built-in P tectors. They will cut repairs and replacements, minimize factory turns, and build customers' satisfaction.

KLIXON

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ISING

Seals, GE compress... at ½ price. Send ... NORTHLAND RE... PANY, 1742 Waban... 22, Illinois.

..., plate type, sweet ... SWC-1 with York ... pressure regulator, ... in original crate. ...ater from 38° to 34° ...emperature. $1,000.00 ...M. SOLOMON, JR., ...eorgia.

...ale: Hermetic Chief... ..., $44.50; ⅛ H. P., ...nown hermetics: ¼ ...52.50; ¼ H. P., fan ...57.50; ¼ H. P., fan ...59.50; ⅓ H. P., fan ...en units, standard ...50; ⅓ H. P., $64.50; ...ve prices quoted on ... units are 60 cycle, ...ve units new, carry... Write for unit list. ...ow pressure control, ... Apol high pressure ...polis-Honeywell dual ... Detroit Lubricator ... $4.25. G. E. blower ...fan, $4.50. Superior ... over-all, ⅜" x ⅝", ...xchanger, 14½" over... ...ramer Trenton panel ...ton, $30.00. Superior ... x 1¼" x 5½", 75¢. ... 4½" face, 30" vac., ...corresponding temp. ...g hand and mount... ...tific Instrument Co. ..." face, minus 40 to ... $4.50. 1 set U. S. ...face, 100# compound ...mp. scale, recal. and ... Ranco type KW... ...lete, $4.00. American ... ⅛ ton, $3.50. Cold ...—30" x 64", 3 to a ...ans Davision refrig... ...6.00. 1—5 lb. can ... silica gel, $1.10. ... proof refrigerator ...2.50. WALTER W. ... Street, Chicago 13.

S WANTED

...efrigeration line to ...ven up; continuing ... I have represented ... refrigeration com... ...pressors in western ...Ohio, and Michigan. ...ounts and sold with ... all jobbers. Have ...me. Not interested ... and manufacturer. ...rospects and money ...NA, 1605 Riverside

REPRESENTATIVE ...atele in New York, ...sylvania, interested ... line of commercial ...nditioning, electric ...ied products. Have ... offices in northern ... of experience and ...g dealers and dis... responsible. BOX ...g & Refrigeration

ORTUNITIES

... leading refrigera... ...g, television, and ...ervice establishment ...ocation ten years. ... netted $20,000 last ...,500 to cover truck, ...ovements plus mer... cost—about $8,000. ...ioning & Refrigera...

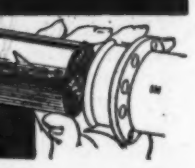
...op in San Joaquin ... pressure, air condi... ...cilities. 1,000 sq. ft. ...new office, display ...ng, 4,000 ft. steel ...ng franchise two ... cabin. 3 trucks, ...ls and equipment. ...096, Air Condition... ...ews.

...st electrical manu... ...r sale by owner. ... Sales nation wide ...tablished franchise ...profits. $250,000 in... ...with inventory, ma... ...000 down. Balance ...Air Conditioning &

ANEOUS

... in on the tremen... ...n custard machines. ... refrigerate them ...everywhere, season ...laborate machinery ...y shop equipment. ...nd instructions for ...ard machine. $5.00. ...CTS CO., Box 1095, ..., Ohio.

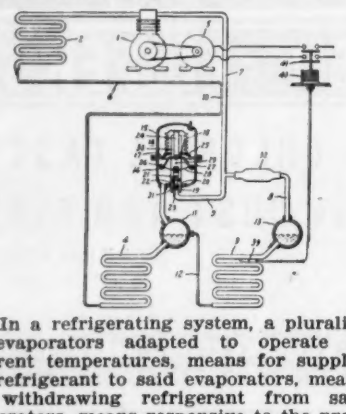
...DFN ...DRATORS ...n the line longer ...ess servicing



PATENTS

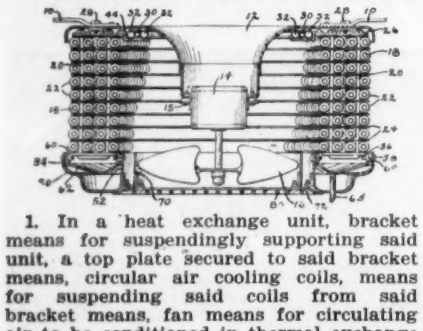
Week of November 23 (Continued)

2,454,537. TWO-TEMPERATURE REFRIGERATING SYSTEM. Leonard W. Atchison, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application May 5, 1947, Serial No. 745,940. 4 Claims. (Cl. 62—3.)



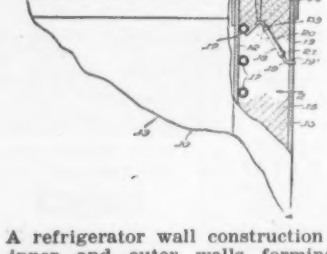
1. In a refrigerating system, a plurality of evaporators adapted to operate at different temperatures, means for supplying refrigerant to said evaporators, means for withdrawing refrigerant from said evaporators, means responsive to the pressure in one of said evaporators for controlling the flow of vaporized refrigerant from said one of said evaporators to said withdrawing means, and means for controlling the flow of vaporized refrigerant from the other of said evaporators to said withdrawing means, said last-named means being effective on the blocking of flow of vaporized refrigerant from said one of said evaporators to provide for flow of vaporized refrigerant from said other of said evaporators.

2,454,654. AIR COOLING APPARATUS. Daniel L. Kaufman, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 22, 1947, Serial No. 723,589. 3 Claims. (Cl. 62—140.)



1. In a heat exchange unit, bracket means for suspendingly supporting said unit, a top plate secured to said bracket means, circular air cooling coils, means for suspending said coils from said bracket means, fan means for circulating air to be conditioned in thermal exchange with said cooling coils, a circular substantially U-shaped in cross-section bottom housing, insulating means for securing the upper edge portion of one leg of said housing to said coil suspending means, a circular drip tray disposed within said housing, means for securing said drip tray to the upper edge portion of one of the legs of said housing so as to support the tray in spaced relationship to the other leg of said housing and to the bottom wall thereof, and a collar-like member surrounding said fan means and extending substantially throughout the height of the inner leg of said housing in spaced relation thereto for shielding the same from incoming air circulated by said fan means.

2,454,715. DEVICE FOR PREVENTING EXCESSIVE CONDENSATION IN THE INSULATING SPACE OF REFRIGERATORS. John S. Palmer, Chicago, Ill., assignor to International Harvester Co., a corporation of New Jersey. Application March 8, 1946, Serial No. 653,045. 9 Claims. (Cl. 62—89.)



1. A refrigerator wall construction having inner and outer walls forming an insulating chamber, a heat insulating material disposed within said chamber, a cooling element for cooling said chamber, and a conduit in communication with the uncooled atmosphere and said chamber, said conduit including a portion in heat exchange relationship with said cooling element for condensing water in the atmosphere passing through said conduit and for freezing the same therein.

AVAILABLE FOR LICENSING OR SALE

E. I. du Pont de Nemours and Company has placed more than 4,000 of its patents on the Register of Patents as available for license on reasonable terms.

Detailed information concerning specific abstracts should be addressed to Patent Division, E. I. du Pont de Nemours and Company, Wilmington 98, Del.

Pat. 1,879,893. Refrigeration Composition. Sept. 27, 1932. Chloropicrin is added to methyl chloride for refrigeration systems to act as a warning agent in case of leakage.

Pat. 1,886,034. Odorant for Refrigeration. Nov. 1, 1932. The methyl, ethyl tertiary butyl and isopropyl esters of bromacetic acid are used as a warning agent for refrigerants such as methyl chloride.

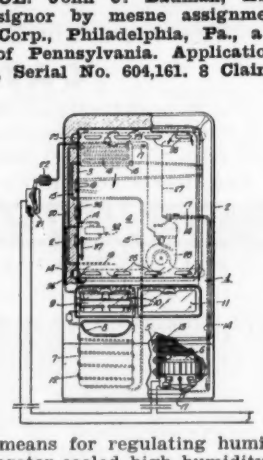
Pat. 1,905,817. Odorant for Refrigeration. Apr. 25, 1933. Alkyl mercaptans, e. g. ethyl mercaptan, as warning agent for hydrocarbon and chlorohydrocarbons used as refrigerants.

Pat. 1,918,371. Preparation of Methyl Chloride and Methylene Chloride. July 18, 1933.

Pat. 2,123,434. Process of Cleaning. July 12, 1938. Heat exchangers cleaned by forced circulation of a liquid solvent, e. g. trichlorethylene.

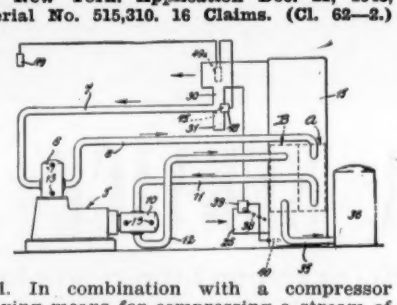
Week of November 30

2,454,855. REFRIGERATOR HUMIDITY CONTROL. John J. Bauman, Abington, Pa., assignor by mesne assignments, to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application July 10, 1945, Serial No. 604,161. 8 Claims. (Cl. 62—6.)



1. In means for regulating humidity in an evaporator-cooled high humidity chamber, the combination with dehumidifying means, of an actuator for said means responsive to variation in the temperature differential between the said evaporator and the air within said chamber.

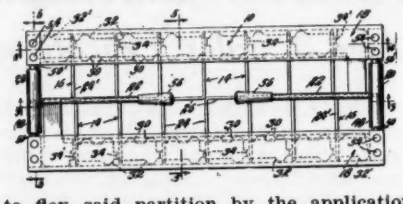
2,454,883. APPARATUS FOR COOLING COMPRESSED GASES. Martin H. Olstad, Port Washington, and Allan E. Williams, White Plains, N. Y., assignors to Niagara Blower Co., Buffalo, N. Y., a corporation of New York. Application Dec. 22, 1943, Serial No. 515,310. 16 Claims. (Cl. 62—2.)



1. In combination with a compressor having means for compressing a stream of non-condensible gas having a component which liquifies on cooling the compressed gas and a jacket through which a stream of cooling water is circulated, means forming a chamber having an air inlet and an air outlet, a fan arranged to force a current of air from said inlet, through said chamber and out through said outlet, a cooling coil arranged in the current of air passing through said chamber, means for discharging and distributing water over said cooling coil to wet the exterior of said cooling coil and to evaporate and absorb heat therefrom, means for conducting said stream of non-condensible gas through said cooling coil to cool said gas and liquify said component, and means for collecting said liquified component.

2,454,958. ICE TRAY. Sven W. E. Andersson, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application April 5, 1946, Serial No. 659,959. 13 Claims. (Cl. 62—108.5.)

12. A grid for dividing an ice cube tray into compartments, said grid comprising a flexible, vertical partition and members connected to the upper part of said partition at points spaced therealong and projecting horizontally from the top of the partition, said members being movable

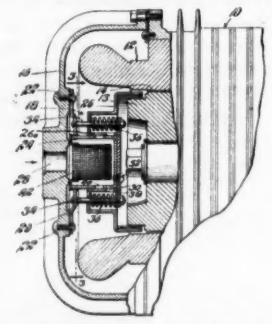


to flex said partition by the application thereto of opposed forces parallel to but displaced laterally from the partition.

2,454,960. ICE TRAY. Harrison C. Berkeley, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

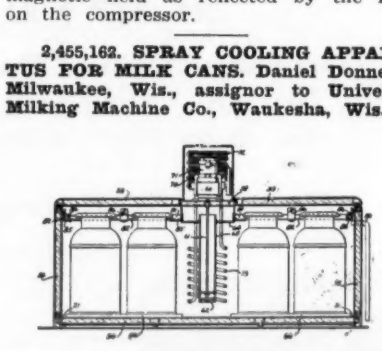
1. A unitary molded plastic freezing tray, comprising: an integrally molded container pan and a longitudinal partition having its bottom edge molded to the pan bottom but having its end edges substantially detached from the end walls of said pan whereby to increase the flexing distortability of this integrally molded unit, a series of spaced separate cross partitions intersecting said longitudinal partition and retained substantially in normal freezing position by an interlocking relationship therebetween and thereby forming a unitary pan and grid structure, the edges of said cross partitions being movable relative to the adjacent pan walls whereby to increase the distortability of the unitary pan and grid structure to facilitate the removal of the frozen ice blocks by manual flexing.

2,454,976. COMPRESSOR LOAD PROTECTOR. Clyde E. Ploeger, Evansville, Ind., assignor to Servel, Inc., New York.



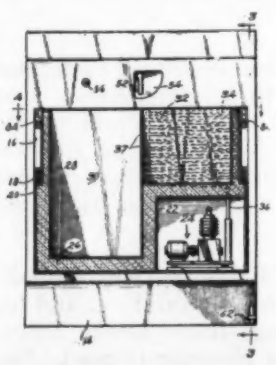
1. In combination a compressor, an electric motor for operating said compressor, a valve connected to said compressor for varying the load thereon, said valve being provided with a member constructed of magnetic material disposed within the magnetic leakage field of said motor to be attracted thereby for moving said valve in one direction, means opposing the attraction of the magnetic leakage field urging said valve in the opposite direction, the construction and arrangement being such that when the magnetic leakage field is of maximum intensity, as at the instant of starting the motor, the valve is moved in one direction to unload the compressor and as the motor approaches running speed the valve is moved in the opposite direction to load the compressor, thereafter during operation of the compressor the valve modulates between open and closed positions in accordance with the intensity of the magnetic field as reflected by the load on the compressor.

2,455,162. SPRAY COOLING APPARATUS FOR MILK CANS. Daniel Donnelly, Milwaukee, Wis., assignor to Universal Milking Machine Co., Waukesha, Wis.



1. A cooler for chilling freshly drawn milk in cans, comprising the combination with a milk can receiving, heat insulated liquid containing tank, of a motor driven chilling unit mounted on the tank and including expansion coils in the tank below the normal level of the liquid therein, a distributing pan supported from the walls of the tank above the maximum level of the liquid therein, a motor driven pump having connections for supplying liquid to the pan from the lower portion of the tank, and flexibly jointed pipe connections for gravity delivery of liquid from the pan to the neck portions of milk cans in the tank.

2,455,182. REFRIGERATOR DRAWER. Oscar A. La Vallee, Wolf Point, Mont.



1. A refrigerator comprising a housing, a drawer slidable laterally from said housing, a refrigerant liquefying unit housed in a chamber in said drawer, said drawer having an insulating liner in the walls and bottom thereof and partition means defining freezing and food storage.

(To Be Continued)

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POSITIONS WANTED

REVERSE CYCLE heating and cooling. Installation men—service men—shop men now available. Graduates of our refrigeration course. Men thoroughly grounded in theory and with nine months practical experience commercial systems and domestic units. Will locate anywhere. Detailed information upon request. WEST COAST TRADES INSTITUTE, 745 North Russell Street, Portland 12, Oregon.

EXPERIENCED REFRIGERATION man on open and sealed units, some commercial, washing machines fully automatic and others. Many years of experience. Also experienced on sales on these items. Would like to get a position as a salesman or serviceman or both with a factory of this kind. Can give good reference. Write to BOX 3090, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION man with 20 years experience in all phases of service, installation, estimating and customer contact work would like connection with dealer, contractor or manufacturer in California. BOX 3098, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

COMMERCIAL SERVICE and installation man wanted: must have at least 5 years experience. Truck furnished. Pleasant working conditions. $1.50 per hour, time and a half overtime. Paid vacation and 10 day sick benefit, yearly. General Electric and Hussmann distributors. JERRY'S REFRIGERATION CO., 610 Washington St., Wausau, Wis.

WANTED ENGINEER. Old and well established distributor contractor handling nationally known and well advertised equipment, within an hour from New York City, wants a thoroughly experienced air conditioning and refrigeration sales engineer. Must supervise sales force and be capable of handling all sizes of air conditioning and refrigeration up to 50 tons. Salary and override on volume business. Permanent position to man of proven ability. Opportunity to invest in business. Applications will not be considered unless showing fifteen to twenty years field experience. BOX 3087, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

SELLING OUT way below our wholesale costs the latest type new six foot dry type beverage coolers. For a good buy, write ACME REFRIGERATION CO., 634 Dean St., Brooklyn, New York.

NIAGARA DUO-PASS evaporative condensers for "Freon" gas. 1—Model 2520 approx. over-all dimensions, 79" height, 36" width, 75" length. Rating tons "Freon" 20 tons at 105° Fahrenheit based on 76° wet bulb and 40° suction temperature. Today's cost $1,592.00. Our selling price $900.00. 1—Model 25x150 approx. over-all dimensions, 79" height, 35" width, 70" length. Rating tons "Freon" 14.5 tons at 105° Fahrenheit based on 76° wet bulb and 40° suction temperature. Today's cost $1,534.00. Our selling price $800.00. Niagara descriptive literature can be mailed upon receipt of your inquiry. Above condensers are new and in original cratings. ALLIED REFRIGERATION CORP., 1635 East 55th Street, Cleveland, Ohio.

RECORDING THERMOMETERS, Bristol, remote 7 day electric, $69. Thermostats, Mercoid, minus 10° to plus 40°, $15. Heat exchangers, Acme, 3 ton @ $27; 2 ton @ $20. Evaporative condensers, Marlo E C 5, $335. Tunnel blast freezer complete 1,800 basic rating, $535. New 1 H.P. to 7½ H.P. water cooled Universal and Copelands at less than distributor's cost. Used Westinghouse 60 ton condensing unit—bargain! 3'6" x 6'6" Jamison double batton automatic close doors with track heads for 7'2" track, 1½" cork board insulation at $95 each. All new in original factory crates. BIMEL COMPANY, 2600 Colerain Ave., Cincinnati 14, Ohio.

SEALED UNITS rebuilt and exchanged. Prompt service on Coldspot (sealed & semi-sealed). Chieftain, Gale, Tecumseh, Norge and many others. One year guarantee. Write for price list and shipping instructions. BRIGHTON, 3906 Joy Rd., Detroit 6, Michigan.

SPECIAL CLOSE-OUT on brand new freezer plates, coils, and units. Yoder plates—19" x 31" @ $3.75; 21" x 72" @ $7.00. Dole plates—22½" x 33" @ $4.25; 24" x 79" @ $8.00; 22" x 61" @ $6.00; 22" x 72" @ $7.00. (All plates have ½" male or female end connections.) Bush finned coils 76" x 16" x 2¼" 6 tube single row @ $9.00. Chrysler Airtemp air cooled units—¼ H.P. @ $54; ⅓ H.P. @ $60; ¾ H.P. @ $102; 1½ H.P. @ $168. Send deposits to GENERAL REFRIGERATORS CORP., 678 Broadway, New York 12, N. Y.

1,000 LBS. ALUMINUM tubing ½" O.D. x .28" wall thickness 3 SO @ 40¢ per lb.; 100 gal. Thermal Mastic #446 in 5 & 10 gal. drums @ $2.00 per gal.; 4,000' Jarrow #B4868 gasket in 7½' lengths @ 1¢ per ft.; 1,500 flare to flare ½" connectors @ 6¢; 1,500 ¼" flare to flare connectors @ 5¢. MIDWEST INDUSTRIES, 835 Osage Ave., Kansas City, Kansas.

NEW THERMOSTATIC expansion valves: Sporlan Stand. ½ T M ⅝ x ½ $5.50 each, Sporlan Stand. ½ T F ⅜ x ½ $5.50 ea., Detroit 893 ½ T F30 10° super ¼ x ¼ P. $4.50 ea., Detroit non-adj. 893 X ½ T F15 3° super ¼ x ⅜ for home freezers or domestic $1.50 ea. Chieftain Hermetics (new) ⅛ HP $42.00 ea., without condenser $39.00, in lots of 10—$37.00 ea., in lots of 10 less condenser $34.00 ea. Seals, GE compressor parts and fittings at ½ price. Send for scandal sheet. NORTHLAND REFRIGERATION COMPANY, 1742 Wabansia Avenue, Chicago 22, Illinois.

1—YORK, AMMONIA, plate type, sweet water cooler, Model SWC-1 with York pilot operated suction pressure regulator, both items new and in original crate. Will cool 30 GPM water from 38° to 30° with 22° refrigerant temperature $1,000.00 F.O.B. Macon. L. M. SOLOMON, JR., R.F.D. #1, Macon, Georgia.

SUBJECT TO prior sale: Hermetic Chieftain units—⅛ H. P., $44.50; ⅙ H. P., $48.50 Other well known hermetics: ¼ H. P., fan cooled, $52.50; ¼ H. P., fan cooled, light duty, $57.50; ¼ H. P., fan cooled, heavy duty, $59.50; ½ H. P., fan cooled, $69.50. Open units, standard makes: ¼ H. P., $54.50; ⅓ H. P., $64.50; ½ H. P., $84.50. Above prices quoted in lots of six. All open units are 60 cycle, single phase. All above units new, carrying factory warranty. Write for unit list. Penn type 260 Apol low pressure control, $4.25. Penn type 262 Apol high pressure control, $4.25. Minneapolis-Honeywell dual pressure control, $4.50. Detroit Lubricator low pressure control, $4.25. G. E. blower fan motor with 10" fan, $4.50. Superheat exchanger, 13" over-all, ¾" x ⅞", $4.25. Mueller heat exchanger, 14½" over-all, ⅜" x ⅝", $5.00. Kramer Trenton pancake blower complete, ½ ton, $30.00. Supermaster drier ¼" flare x 1¼" x 5½", $2.50. U. S. "Freon" gauge, 4½" face, 30" vac. 150# or 300#, with corresponding temp. scale with red warning hand and mounting holes, $4.50. Scientific Instrument dial thermometer, 4½" face, minus 40 plus 120, 5 ft. tube, $4.50. 1 set U. S. "Freon" gauge, 2½" face, 100# compound and 300# pressure, temp. scale, recal. mounting holes, $3.50 Ranco type K-412 cold control complete, $4.00. American Injector oil separator, ⅛ ton, $3.50. Cold plates 1—30" x 55", 2—30" x 64", 3 to set, $35.00. 6—5 lb. cans Davision refrigeration silica gel, $6.00. 1—5 lb. can Davison refrigeration silica gel, $1.50. Crouse-Hinds vapor proof refrigerator light, with guard, $2.50. WALTER E. STARR, 1207 George Street, Chicago 7, Illinois.

FRANCHISES WANTED

WANT ANOTHER refrigeration line to sell replacing one given up; continuing Brunner Mfg. Co. that I have represented for 15 years on both refrigeration compressors and air compressors in west Pa., part of W. Va., Ohio, and Michigan. Have best jobbing accounts and sold with two lines practically all jobbers. Have assistant working for me. Not interested except first class line and manufacturer. Must have volume prospects and must be maker. S. W. HANNA, 1605 Riverside Dr., Lakewood, Ohio.

MANUFACTURER'S REPRESENTATIVE with established clientele in New York, New Jersey and Pennsylvania, interested in representing quality line of commercial refrigeration, air conditioning, electric water coolers, and allied products. Have own display room and offices in northern New Jersey. Years of experience and know-how in handling dealers and distributors. Financially responsible. BOX 3022, Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

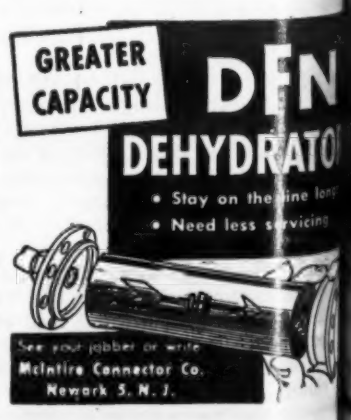
MIAMI, FLORIDA—a leading refrigeration, air conditioning, television, and appliance sales and service establishment—in same Miami location ten years. Grossed $150,000 and netted $20,000 per year. Will sell for $7,500 to cover trade equipment, and improvements plus merchandise inventory at cost—about $3,000. BOX 2992, Air Conditioning & Refrigeration News.

MOST COMPLETE shop in San Joaquin Valley. Complete low pressure, air conditioning and heating facilities. 1,000 sq. ft. warehouse, 3,200 ft. new office, display and workshop building, 4,000 ft. fenced yard. Leading franchise in counties. House and cabin. 3 trucks, portable welder, tools and equipment. All $45,000.00. BOX 3096, Air Conditioning & Refrigeration News.

WEST COAST'S largest electrical manufacturing concern for sale by owner. Location Los Angeles. Sales nation wide and export thru established franchised dealers. Substantial profits. $250,000 includes plant complete with inventory, machinery, bldgs. $125,000 down. Balance 10 years. BOX 3097, Air Conditioning & Refrigeration News.

MISCELLANEOUS

SERVICEMEN CASH in on the tremendous demand for frozen custard machines. Assemble, build, and refrigerate yourself. Prospects everywhere, you just starting. No elaborate machine required, just ordinary shop equipment. Complete drawings and instructions for 2½ gallon frozen custard machine. ENTERPRISE PRODUCTS CO., Box 6, Station A, Cleveland 2, Ohio.



Refrigeration Problems

and their Solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

Motor Trouble (7)

LOAD TESTING THE MOTOR

The proof of the pudding is said to be in the eating thereof. Just as we test the efficiency and capacity of a compressor by putting it on a "pump-up" test, we can also test a motor after it has been repaired or overhauled, by putting it on a load test.

A load test is neither difficult nor expensive to set up and should be set up by every refrigeration repair shop even though no motors are repaired there, for it is often necessary to tell whether it is the fault of the motor, or if the compressor is tight, or if there is some other cause of overload.

There are several methods of setting up a motor load tester. The more inexpensive types put a brake of some sort on the motor shaft, and then with a scale of some sort, measure the torque in pounds that the brake exerts on the motor.

One of these "prony brake" test setups is illustrated in Fig. 2. It consists of a spring scale hung directly above the motor pulley, with a cord tied to the hook of the spring scale, and wrapped two or three turns around the motor pulley in the direction of rotation of the motor shaft and of the pulley.

The pulley should not be a V-belt pulley, but a pulley with a flat face such as was used with flat belts. It should have no crown and should be smooth so that it does not grab the cord. If there is any tendency of the cord to grab, a little paraffin or beeswax may be used on the cord.

By pulling downward on the cord, any amount of load can be put on the motor up to the capacity of the scale. The amount of pull in pounds, as read on the scale, can be calculated for various horsepower motors, at various motor r.p.m. for various pulley diameters, by using the following formula:

Scale Reading (in pounds) =
Hp. x Pulley Diameter (in.) x 5,235
Motor r.p.m.

The diameter of the pulley must include the thickness of the cord, unless the thickness of the cord is less than about 2% of the pulley diameter, in which case the cord thickness may ordinarily be ignored as not sufficiently important to warrant taking it into consideration.

EXAMPLE:

If the pulley is 2 in. in diameter and the cord is ⅛ in. in diameter, the ⅛ in. is about 6% of the diameter of the pulley so it should be added to the pulley diameter and the 2⅛ in. used in the formula instead of 2 in. On the other hand, if the pulley is 2 in. in diameter and the cord is only 1/16 in. thick, the 1/16 in. can be ignored, for it will affect the result less than 2%.

Suppose that we have repaired a ⅓-hp. motor whose full-load speed is 1,750 r.p.m., and we want to test it to see if it will pick up full load and get it up to full load speed and carry it there. As a matter of fact we want to determine if it will pick up and carry at least a 25% overload. So instead of using ⅓ (or .333) hp. in the formula, we will use .333 x 1¼ or 4.2.

We place the motor on the test stand and slip the motor pulley on over its shaft and secure it in place. The pulley has a diameter of exactly 2 in. at the face. We caliper or "mike" the cord from the scale hook and find that it is 3/32 in. in diameter, which we will call 1/10 in. (.1 in.) as accurate enough for our purpose. So as the pulley diameter we will use 2.1 in. instead of 2 in.

Thus to find the pull that we will exert on the cord to impose on this motor ⅓ hp. with a 25% overload:

$$\text{Scale Reading} = \frac{.42 \times 2.1 \times 5{,}235}{1{,}750} = \frac{4{,}617}{1{,}750} = 2\tfrac{2}{3} \text{ or } 2.67 \text{ lbs.}$$

With the cord wrapped around the pulley two or three turns as previously described, but with no pull on the cord, we turn the motor on. With no load it should almost immediately get up to a speed a little above its full-load speed of 1,750 r.p.m.

Now we start to pull on the cord until the scale reads 2⅔ lbs., or 2 lbs. and about 11 oz. The motor will slow down slightly to, in fact, a little below 1,750 r.p.m. for we have a 25% overload on it, but it should carry this load with little trouble. Actually most single-phase motors today used to drive compressors, should carry 40% overload, or about 3 lbs. on the scale instead of 2⅔ lbs.

We have now shown that the motor will carry a 25% overload, but we have not shown that it will pick up this heavy a load from a dead start. We must now test it to see if it will start and bring up to load speed, this same load, which is full load plus 25% overload.

STARTING UNDER LOAD

So we stop the motor, but without loosening the pull on the cord, so even with the motor not running, the scale should show a 2⅔-lb. reading. We again start the motor, but this time it must pick up the 125% load and bring it up to load speed.

It should do this in a matter of 5 or 6 seconds, and after it gets up to full speed, it should continue to carry this load (overload really) continuously, although it may get rather hot, but its temperature should not rise more than 72° F. above room temperature, if it is given reasonable ventilation.

In fact, as stated above, if this is a single-phase motor that is used to drive a refrigerating compressor, it should be able to pick up and carry even a 140% load represented by a 3-lb. reading on the scale.

Fan motors and other motors used to drive other accessories are not designed to start and carry such heavy overloads and may be considered satisfactory if they will start and carry 125% load.

After this test it is well to run the motor until it gets rather warm, even hot, and then repeat the test of starting the 125% load, especially if new bearings have just been put in, to see if the bearings have tightened up when it got hot.

In fact, a new motor or one which has had new bearings put in it, should be run about an hour idle and without load, to give it a chance to run in, before connecting it up to load or testing it for loading.

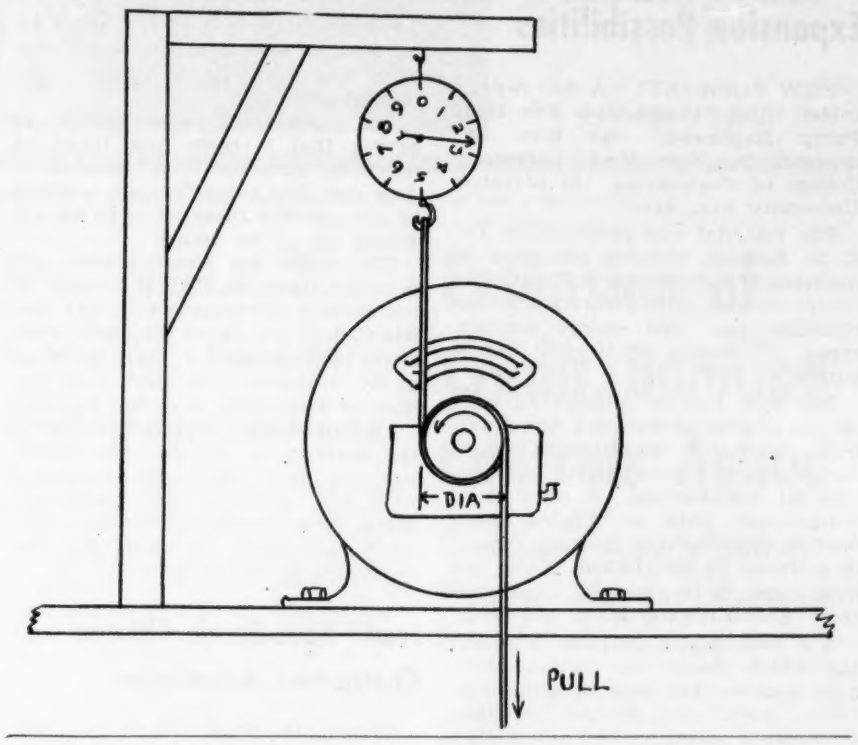
STARTING AT LOW VOLTAGE

The test set may be elaborated by equipping it with an ammeter, a wattmeter, and a voltmeter. A still further addition can be a rheostat in the line to the motor that will enable you to lower the voltage to the motor. Then the motor can be tested for its ability to start under low voltage.

Almost all motors used in refrigeration work are designed so that they will start full load and bring it up to full-load speed, but not an overload at 90% rated voltage. In the case of the above ⅓-hp. motor, it should start and bring up to speed a load of approximately 2 lbs. on the scale, at 90% rated voltage, that is at 99 volts on a 110-volt motor, 103½ volts for a 115-volt motor, 198 volts for a 220-volt motor, etc.

In overhauling a motor, care should be given to see that the oil ring, if one is used, is in the slot in the bearing and turning freely on the shaft, that the waste or yarn is well up around the bearing and is well saturated with the oil.

Fig. 2 'Prony Brake' Test Setup for Motors



Most motor manufacturers recommend an automobile crankcase oil of about SAE 20. Connections should all be tight on binding screws, and splices soldered and taped while hot, with both rubber and friction tape. Commutator must be clean, smooth, with the mica slightly under-cut, and brushes ground to the commutator and loose in the brushholder.

Starting switches and their actuating mechanism should be clean and free, and properly adjusted to change to the main winding at about three-fourth full-load speed or at whatever speed the motor manufacturer specifies.

Many inoperative motors or motors that are hot or noisy, need nothing more than a good cleaning, followed by a proper load test to make sure that the motor is in good condition. If it will pass the load test outlined and described above, the service engineer can feel pretty safe in putting it on a job with the expectation that it will operate satisfactorily and perform dependably.

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Dial Thermometers
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KLIXON PROTECTORS
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In Open-Type Units

Records of compressor manufacturers prove that Klixon Protectors prevent motor burnouts in all kinds of compressor units, hermetic or open-type.

In hermetic units, Klixon Protectors are mounted on the dome where they follow every temperature change. In open types they are built into the motor by the motor manufacturer assuring positive overheat protection.

Regardless of the type, should the motor become dangerously overheated, the Klixon Protector snaps the power "off" automatically preventing a possible burnout. As soon as the motor cools sufficiently, the protector snaps the power "on" again permitting the unit to maintain refrigeration.

Protect your compressor by using and specifying Klixon built-in Protectors. They will cut repairs and replacements, minimize factory returns, and build customers' satisfaction.

Klixon
Motor Starting Relays
These dependable relays complete the combination for starting and protecting the motor. Their positive action and long life eliminate starting troubles.

KLIXON
SPENCER THERMOSTAT DIVISION, Metals & Controls Corporation, 2402 Forest Street, Attleboro, Mass.

Heat Pump Folder Tells Expansion Possibilities

NEW YORK CITY—A new 8-page folder titled "Possibilities For Heat Pump Expansion" has been announced by New York university College of Engineering, 181 Street & University Ave., here.

The material was prepared by Dr. E. N. Kemler, research professor of mechanical engineering, and discusses future outlook with reference to application, heat and energy sources, types of systems, cycle, and distribution.

The new booklet, illustrated with charts, curves, photos, and line drawings, compares operational factors for residential, commercial, and industrial installations. It also gives dimensional data on typical residential units having heating capacities from 34,000-116,000 B.t.u. per hour and with cooling capacities from 32,000-126,000 B.t.u. per hour.

The new folder contains a drawing which shows the various earth heat sources that may be utilized in future installation designs. Another illustration based on New York City statistics indicates an apparent relaship between death rate and temperature.

Requests for the folder should be addressed to V. W. Palen, Bureau of Public Information, enclosing 10 cents per copy to cover cost of handling and mailing.

Grand Rapids Conditioning Group Re-elects All Officers

GRAND RAPIDS, Mich.—All officers of the Grand Rapids Heating & Air Conditioning Club were re-elected to new terms, it was announced here recently.

The officers are L. A. Calcaterra, president; A. William Honecker, vice president; John Holwerda, secretary; and Edmund J. Wasel, treasurer.

Stores Cut Lines--

(Concluded from Page 1, Column 4)

far less up to last fall because turnover was immediately due to the critical scarcity."

The spokesman was quoted as saying that it costs four times as much to advertise four lines as it does one. The store "cannot continue to merchandise them all when we are selling none," he added.

The buyer for another store reportedly declared that the outlet is not buying refrigerators in any line which does not carry discounts sufficient to guarantee a real operating profit. However, the store does not plan to discontinue any line entirely.

"Retailers have long complained of the markup on refrigerators, which runs to 33% maximum, compared with 40% pre-war," the newspaper noted. "One dealer said that the sales slump has taken the issue from the complaint to action stage."

Frank Haas Heads Chicago Contractors Association

CHICAGO—Frank Haas, president of The Haskris Co. here, has been elected president of the Refrigeration Contractors Association of Chicago, the association has announced.

Other officers elected were Walter McCarty, president of McCarty Bros. Equipment Corp. (River Forest, Ill.), vice president; and Alphonse Garat, partner of A. G. Refrigeration Sales & Service, Inc., secretary-treasurer.

Directors elected to two-year terms were Harvey O. Miller of Murphy & Miller, Inc.; George T. Howe of Accurate Electric Refrigeration Service; S. Ray Thompson of Thompson-Hense Corp.; and John Annis of Lipman Refrigeration Sales & Service.

Directors elected for one-year terms were past president H. E. Wheeler of Air Comfort Corp.; Albert G. Weil of Refrigeration Maintenance Corp.; and T. J. Reedy of North Town Refrigeration Corp.

What Every Young Wiring Man Should Know

CHICAGO — What do you do in your bedroom?

And what does it have to do with presenting the adequate wiring story to consumers?

An answer to the second question, at least, is expected to be forthcoming from M. R. Norton, dealer coordinator for the Wisconsin Power & Light Co., when he addresses the fifth annual adequate wiring conference here on Thursday, Feb. 24. The first question is the title of his talk.

The conference is being staged in the Stevens hotel on Feb. 24 and 25 immediately following the convention and exposition of the National Association of Home Builders.

Another poser, "How Bad Can You Feel?" will form the basis of the conference's keynote address which will be delivered by N. J. MacDonald, chairman of the Nema adequate wiring committee.

In addition to these, the conference, which is sponsored by the National Adequate Wiring Bureau, will include four talks, two panel discussions, and an open forum discussion.

Registration fee is $4.00.

Mills Sets Minimum Billing On Purchases Less Than $2.50

CHICAGO—Mills Industries, Inc., has established a policy of a minimum billing of $2.50 with any purchase for less than $2.50 to be billed at the minimum rate, Hiland G. Kirkwood, general service manager, has announced.

Rema Show Plans--

(Concluded from Page 1, Column 3)

panies which have already reserved space for the All-Industry Exposition:

Ace Cabinet Corp.; Acme Industries, Inc.; Alco Valve Co.; American Coils Co.; American Refrig. & Machine, Inc.; Aminco Refrigeration Products Co.; Ansul Chemical Co.; Arcade Mfg. Div., Rockwell Mfg. Co.; Automatic Products Co.

Baker Ice Machine Co., Inc.; Betz Corp.; Bonney Forge & Tool Works; Brewer-Titchener Corp.; Brunner Mfg. Co.; Bundy Tubing Co.; Bush Mfg. Co.

Chicago Seal Co.; Coolstream Corp.; Copeland Refrigeration Corp.; Curtis Refrigerating Machine Div. of Curtis Mfg. Co.; Cutler-Hammer, Inc.

Davison Chemical Corp.; Day & Night Mfg. Co.; Dayton Rubber Co.; Delavan Mfg. Co.; Detroit Lubricator Co.; Dole Refrigerating Co.; E. I. du Pont de Nemours & Co., Inc.;

Ebco Mfg. Co.; Electrimatic Div. of The Simoniz Co.; Emil Steinhorst & Sons, Inc.; Eston Chemicals, Inc.; Fedders-Quigan Corp.; Frigidaire Div., General Motors Corp.

Gates Rubber Co.; General Controls Co.; General Electric Co.; L. H. Gilmer Co.; Heat-X-Changer Co., Inc.; Henry Valve Co.; Hubbell Corp.; Imperial Brass Mfg. Co.

Jarrow Products; Jas. P. Marsh Corp.; Kelvinator Div., Nash-Kelvinator Corp.; Kennard Corp.; Kerotest Mfg. Co.; Kinetic Chemicals, Inc.; Kold-Hold Mfg. Co.; Kramer Trenton.

Larkin Coils; Lehigh Mfg. Co.; Lewin-Mathes Co.; Lynch Corp.; McIntire Connector Co.; McQuay, Inc.; Marlo Coil Co.; Merchant & Evans Co.; Mitchell Mfg. Co.; Muel... Brass Co.

Pacific Lumber Co.; Penn El... tric Switch Co.; Ranco Inc.; Refri... eration Corp. of America; Rigidbi... Inc.; Rotary Seal Co.

Servel, Inc.; Sporlan Valve C... Standard Refrigeration Co.; Sun ... Co.; Superior Valve & Fittings C... Tecumseh Products Co.; Tempri... Products Corp.; Tenney Engineeri... Inc.; Texas Co.; Tyler Fixture Corp... Typhoon Air Conditioning Co., Inc...

United Mfg. & Service Co.; Unite... Refrigerator Mfg. Co., Inc.; Univers... Cooler Div. of International Detroi... Corp.; Victor Products Corp.; Victor... Metal Mfg. Corp.; Virginia Smelt... ing Co.

Wabash Mfg. Co.; Wagner Ele... tric Corp.; Weatherhead Co.; We... inghouse Electric Corp.; White... Rodgers Electric Co.; Whiting Cor... —Refrigeration Div.; Wilson Cabin... Co., Inc.; Wolverine Tube Div.; Yo... Corp.

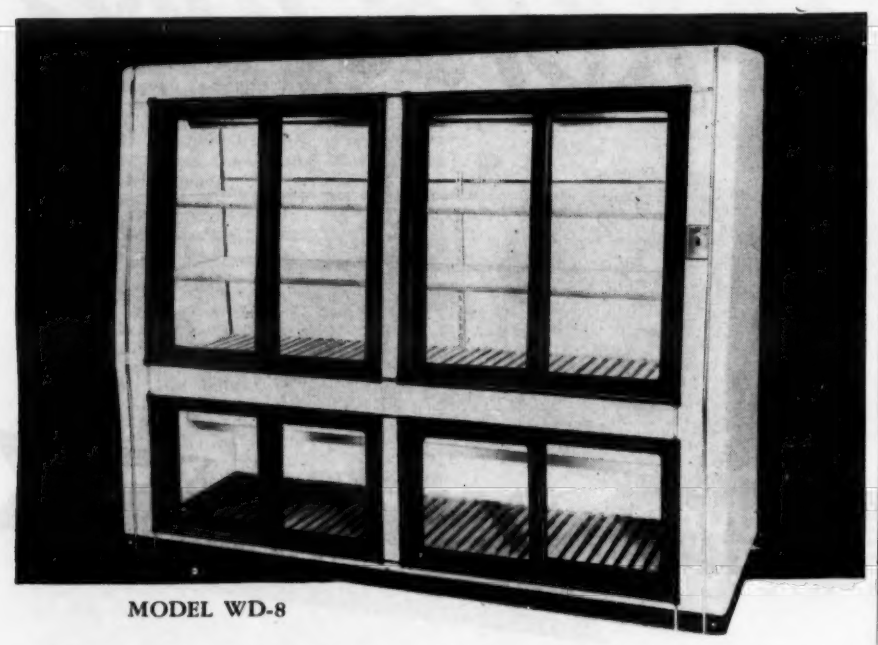
Schwerin Develops Automatic, Direct Psychrometric Chart

NEW YORK CITY—A psychrometric chart, which is automatic and direct reading, has been developed and copyrighted by the Schwerin Air Conditioning Corp., 570 Lexington Ave. here.

The company said the chart is designed for ease of calculation and enables engineers, designers, and estimators in the air conditioning field to determine accurately and rapidly all properties of air when any two properties are known.

It is packaged in a protective envelope and will fit in any briefcase.

The charts are being sold by Schwerin for $2 each.



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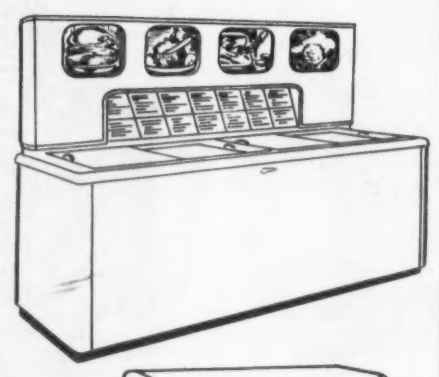

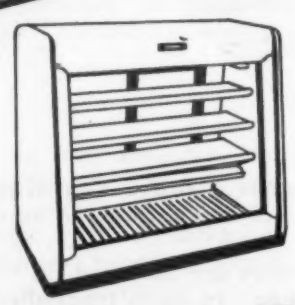

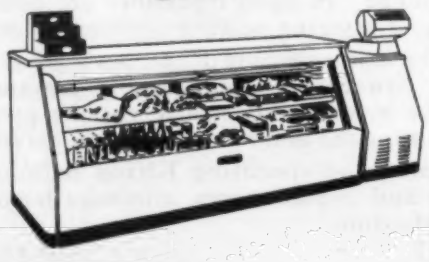

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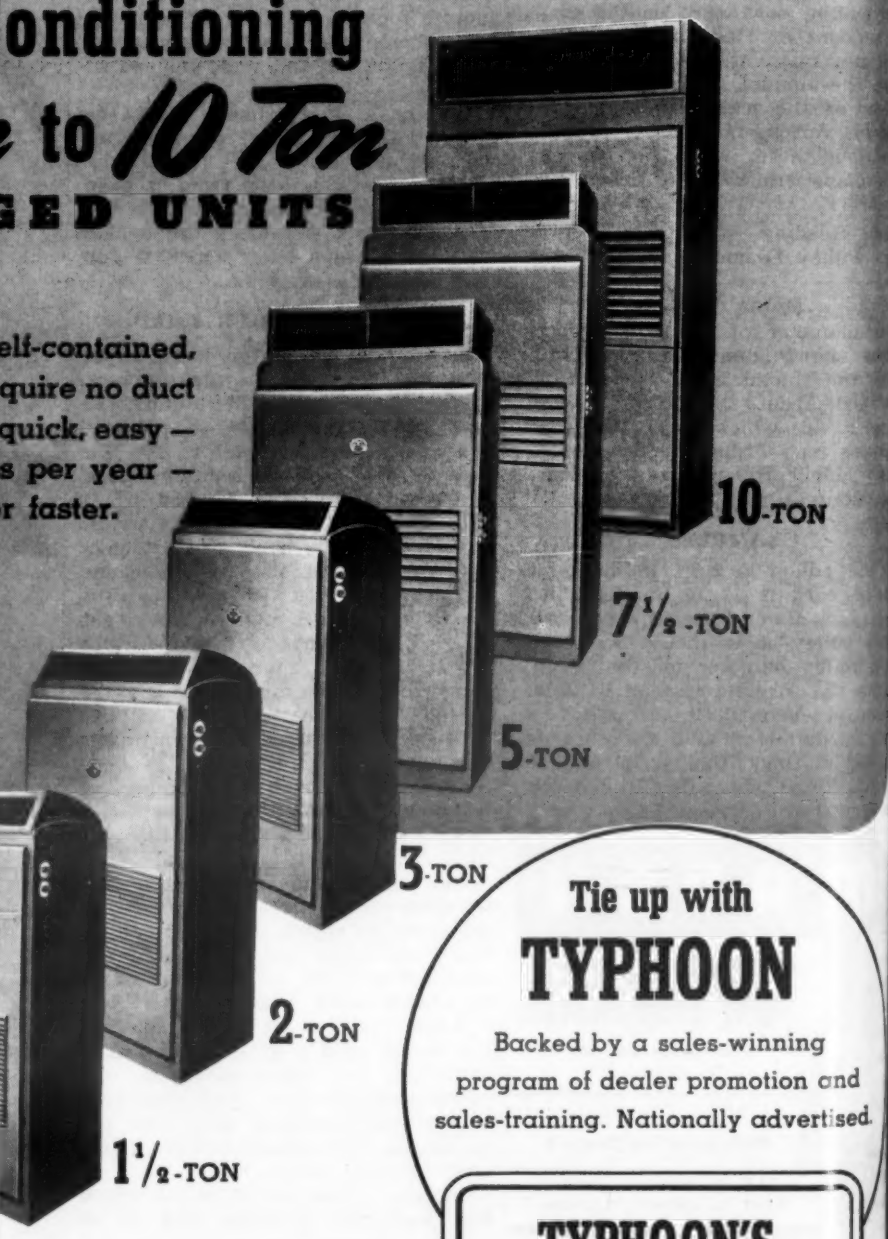

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